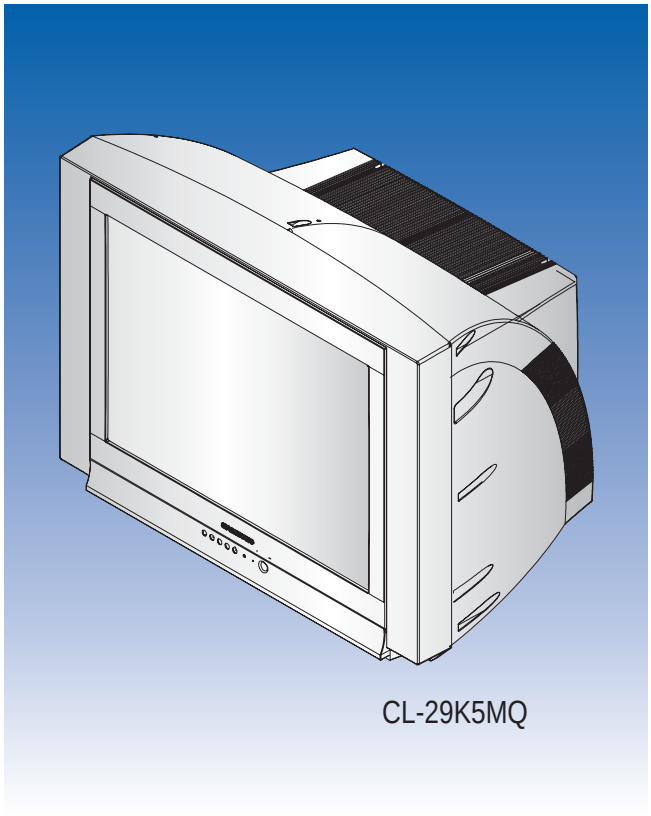
SAMSUNG

COLOR TELEVISION RECEIVER

Chassis : K16A(N)_Rhumba
Model : CL29K5MQ2X/XAX

SERVICE Manual

COLOR TELEVISION RECEIVER



CL-29K5MQ

FEATURES

- Turbo Plus
- DNIe jr.
- Low Stand-By Power Wattage
- SOUND Equalizer

This Service Manual is a property of Samsung Electronics Co.,Ltd.
Any unauthorized use of Manual can be punished under applicable
International and/or domestic law.

© Samsung Electronics Co., Ltd. **Feb. 2006**
Printed in Korea
AA82-03347A

Table of Contents

Chapter 1 Precaution

- 1-1 Safety Precautions 1-1
- 1-2 Servicing Precautions 1-3
- 1-3 Static Electricity Precautions 1-4
- 1-4 Installation Precautions 1-5

Chapter 2 Product Specification

- 2-1 Product Features 2-1
- 2-2 Key Features 2-2
- 2-3 Specifications Analysis 2-3
- 2-4 Accessories 2-4

Chapter 3 Alignment & Adjustment

- 3-1 Service Instruction 3-1
- 3-2 How to Access Service Mode 3-2
- 3-3 Factory Data 3-3
- 3-4 Service Adjustment 3-10
- 3-5 Software Upgrade 3-12
- 3-6 Replacements & Calibration 3-16

Chapter 4 Exploded View & Part List

- 4-1 CL29K5MQ2X/XAX 4-1

Chapter 5 Electrical Part List

- 5-1 CL29K5MQ2X/XAX 5-1

Chapter 6 Troubleshooting

- 6-1 Checkpoints by Error Mode 6-1
- 6-2 Troubleshooting Procedures by Error Modes 6-3
- 6-3 Troubleshooting Procedures by ASS'Y 6-4

Chapter 7 Block Diagram

- 7-1 Overall Block Diagram 7-1
- 7-2 Partial Block Diagram 7-2

Chapter 8 Wiring Diagram

- 8-1 Overall Wiring 8-1
- 8-2 Pin Connection 8-2

Chapter 9 PCB Diagram

- 9-1 Main Board 9-1
- 9-2 PIP Module 9-4
- 9-3 CRT Board 9-5

Chapter 10 Schematic Diagram

- 10-1 Power & Deflection Block 10-1
- 10-2 IF & UOC(Chroma_Micom) Block 10-2
- 10-3 PIP & CRT Block 10-3
- 10-4 AV & Sound Block 10-4

Chapter 11 Operation Instruction & Installation

- 11-1 Product Features and Functions 11-1

Chapter 12 Disassembly & Reassembly

- 12-1 Overhaul Disassembly & Reassembly 12-1

Chapter 13 Circuit Description

- 13-1 Overall Block Description 13-1
- 13-2 Partial Block Description 13-2

Chapter 14 Reference Information

- 14-1 Other issues related to other products 14-1
- 14-2 Technical Terms 14-2

1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes of a too great magnitude between the vaccum tube and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

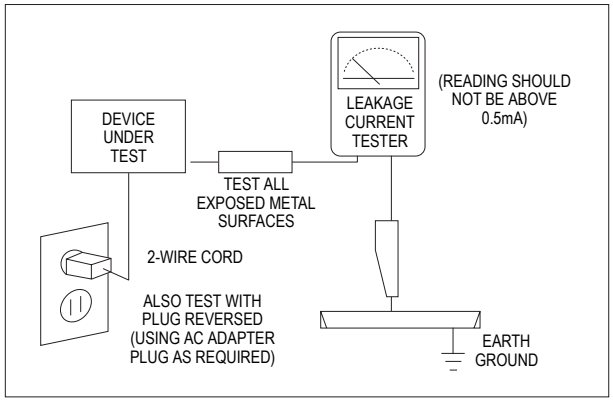

LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
DEVICE UNDER TEST
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with ( ). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so ensure wearing protective gloves during the repair.

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or ass'ys. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD ass'y and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
   Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit ass'y.

9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. Check the basics of the screen test.
   - Image position/size, Tilt adjustment

MEMO

2. Product Specification

2-1 Product Features

Block	Specfication	Core Parts	Remark
CRT	29" FLAT AK CRT	GREEN CRT	
RF Part	1TUNER F/S TUNER	TDQ-6F/13F2S	
Power	WORLD WIDE INPUT VOLTAGE RANGE STD-BY : 5W UNDER	STR-W6750F	
Video	- MULTI SYSTEM(NT/PAL) - 1H Comb Filter	TDA12005PQ, TDA12015PQ	
Audio	- Output : 5W/10W/15W X2 - BTSC/SAP STEREO : PSEUDO STEREO, TURBO PLUS	TDA12005PQ, TDA12015PQ, TDA7297SA	
Cabinet	- 29" CABINET		
Other	- BASIC MODEL : CL29M21FQ2XXAX - UOC3 with a built-in MSP - TURBO → TURBO PLUS		

■ Core Parts Functions
- TDA12005PQ : Video/Sound Processing and MICOM (NTSC)
- TDA12015PQ : Tri-noma
- STR-W6750F : SMPS Power STR
- TDA7297SA(or 7266) : 5W ~ 15W Sound Output BTL AMP
- 24C16 : 16K EEPROM
- LA78040 : Vertical Deflection AMP
- C5936 : H-OUT S/W TR
- TDA-6F/13F2S : F/S PAL Tuner
- TDA6108AJF : R/G/B Drive AMP IC

2-2 Key Features

Model	CL29K5MQ
Voltage	AC100-240V
Frequency of Operation	50/60 Hz
Power Consumption	110 Watts
Dimensions (mm/inches)	766 X 558 X 586/ 30.16 X 21.97 X 23.07
Weight (Kg/ lbs)	41/90.39

■ Hardware Configuration
- 1 Chip : UOC3 TDA12005PQ(CHROMA, IF+Deflection, MICOM, MSP)
- Tuner : TDA-6F/13F2S
- SOUND AMP : TDA7297SA(ZIP, 15P, -, DUAL, 32dB, PLASTIC, 20V, 30W)
- SMPS Controller : STR-W6750F(6P, TO-3P-F7L)
- Vertical AMP : LA78045(TO220, 7P, 15V)
- Flyback Trans : FOK14B001(11P, 27KV)
- CRT : A51QDX993X(A) (AK, 1H Single Focus)

■ Software Configuration
- MCU : 80C51-controller core
- Data Capture for US Closed Caption
- 0.4883s machine cycle

■ Picture
- Enhance : DNIe Jr.(Digital Natural Image Engine)
- System : NTSC3.58
- Interlaced(60Hz)
- AKB(Auto Kinetic Bais)
- Comb Filter : 1H Comb Filter
- 4:3/Zoom

■ Sound
- BTSC/SAP-STEREO
- Output : 5/10/15W X 2CH
- Auto Stereo, Sound Equalizer, Auto Mute, Auto Volume Limit, PSEUDO STEREO, TURBO PLUS

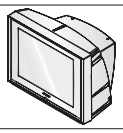
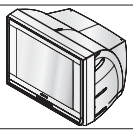
■ Feature
- Composite (RCA A/V, DVD), S-Video(Y/C)
- Picture Size : Zoom/4:3
- Auto Serch
- Sleep Timer : 180 Min
- Clock Setting
- Blue Screen, Melody On-Off, Picture Mode Select

■ In/Out Terminals
- Rear : 2RCA/DVD/S-VHS
- Front or Side A/V Input(Side A/V Preferability)

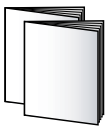
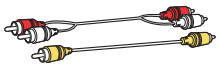
■ Remocon
- Universal Interface TM75

■ Power Consumption : 105W

2-3 Specifications Analysis

Model		CL29M21PQ	CL29K5MQ
Chassis		KS7A	K16A
Design			
Picture	Screen Size	29"	29"
	Pure Flat CRT	○	○
	DNIe Jr.	○	○
	Comb Filter	1H	1H
	Velocity Modulation	×	×
	Video Noise Reduction	○	○
	Auto Kinetic Bias	○	○
	Color Tone Control	○	○
	Tilt Control	×	×
	Picture Mode	4 Mode	4 Mode
Sound	MTS/SAP	○	○
	Output Power(RMS)	15W x 2	15W x 2
	Tweeter	×	×
	BBE	×	×
	Surround	Surround	Surround
	Sound Mode	5 Mode	5 Mode
	Graphic Equalizer	×	×
	Sub-Woofer Speaker	×	×
	Auto Volume Leveler	○	○
	Melody On/Off	○	○
	Turbo Sound	○	○
Convenience	PIP	2T (Optional)	×
	Plug & Play	○	○
	Zoom Mode	○	○
	OSD Demo	○	○
	OSD Language	E/F/S	E/F/S
	Previous Channel	○	○
	Closed Caption	○	○
	On/Off Timer	○	○
	Sleep Timer	○	○
	Auto Power Off	○	○
	Clock	○	○
	Channel Scan	×	×
	Self-diagnostic System	○	○
	Remote Control	TM76	TM75
	Remote Surf	○	○
	Channel Labelling	○	○
	Blue Screen	○	○
	Rack	×	×
Voltage	Voltage	AC100-240V AC120V (Mexico)	AC100-240V
	Stand-by	under 3W	under 5W
Jacks	RF Input	R1	R1
	A/V Input	S1/R2	S1/R2
	Monitor Output	R1	R1
	S-VHS Input	R1	R1
	Headphone	S1	S1
	DVD Input	○	○
	PC Input(VGA)	×	×

2-4 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remote Control AAA Alkaline Battery (2)	AA59-00316B 4301-000121	Samsung Service center
		Owner's Instructions	AA68-03671H	
		Warranty Card	BN68-00797A	
Accessories that can be purchased additionally		Video Cable / Audio Cable	-	Internal shopping mall
		Antenna Cable	-	
		Component Cable	-	

3. Alignment & Adjustment

3-1 Service Instruction

1. General Adjustment :
   In general, a color TV can provide ideal visual quality by adjusting the basic settings such as the vertical size, horizontal size, focus, etc.
   Display a black and white picture on the screen to check if the picture is clearly displayed.
   If there are some 'spotted' points on the screen when displaying a black and white picture, degauss the screen using the degauss coil. If the spotted points remain, re-adjust the purity and the convergence.
   This completes the basic performance examination.

   ⚠ Notice.
   - ■ These adjustments and the check list are only applied to K16A chassis-applied models.
   - ■ Only use 230V for the measurement set. It is recommended using an insulation transformer when supplying power to the set so as to prevent shock to the set or to yourself.
   - ■ These adjustment specifications have been created on the basis of the domestic K16A chassis-applied remote control model. Some of the contents may be changed subject to the sales location and the product specifications.

※ When replacing the Module Service Instruction

1. When replacing the MAIN Board : Tilt adjustment, Focus adjustment, Screen voltage, W/B adjustment are all required. Since the settings including the Channel information, Deflection, etc. are saved to the EEPROM, recogfigure these settings when replacing the MAIN Board.
   The notation of the software information : T-RHMNSA-1000 refer to "GREEN2 BASIC MODEL EUROPE. ver.1000"
   Since the settings including the Channel information, Deflection, etc. are saved to the EEPROM, recogfigure these settings when replacing the MAIN Board.

2. When replacing the CRT Ass'y : No adjustments required

3. When replacing the front panel Master Power switch : No adjustments required

4. When replacing the Side AV Ass'y : No adjustments required

5. When replacing the PIP Module : No adjustments required

6. When replacing the Control Ass'y : No adjustments required

7. When replacing the PFC Ass'y : No adjustments required

3-2 How to Access Service Mode

1. To enter Service Mode, press the keys on the remote control according to the following sequence. (in Stand-by status)

   Mute → 1 → 8 → 2 → Power On

   ※ When failing to enter Service Mode, repeat the procedure above.

2. The initial screen of Service Mode.

3. Functions of the Keys within Service Mode.

MENU	Show all menus
▲ / ▼	Move the cursor to select an item.
◀ / ▶	Adjust the selected configuration value

3-3 Factory Data

★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. Option1

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	System	Var.	CL	CL	CL
2	Video Mute	Var.	400msec	400msec	400msec
3	AV Jack	Var.	2RCA+S+DVD	2RCA+S+DVD	2RCA+S+DVD
4	Sound	Var.	Stereo	Stereo	Stereo
5	Volume Curve	Var.	Large	Large	Large
6	Initial Lang.	Var.	Engilsh	Engilsh	Engilsh
7	Tilt	Var.	Off	Off	On
8	DNIe Jr	Var.	Off	On	On
9	PIP	Var.	Off	Off	2-Tuner
10	Auto Power On	Var.	Off	Off	Off
11	Caption	Var.	On	On	On
12	Vchip	Var.	Off	Off	Off
13	Child Look	Var.	Off	Off	Off
14	Plug Play	Var.	On	On	On
15	StandBy LED	Var.	Off	Off	Off

2. Option2

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	X-Ray Protect	Var.	Off	Off	Off
2	High Deviation	Var.	Off	Off	Off
3	V-Guard	Var.	On	On	On
4	ACS	Var.	Off	Off	Off
5	CRT	Var.	4:3 Zoom	4:3 Zoom	4:3 Zoom
6	LNA	Var.	Off	Off	On
7	Hotel Mode	Var.	Off	Off	Off
8	Philippines	Var.	Off	Off	Off

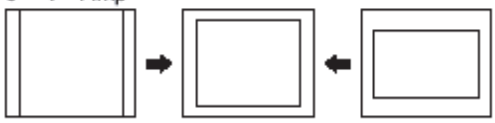
3. Deflection(NTSC 60Hz)

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	V Amp	Var.	47	47	47
2	V Shift	Var.	24	24	24
3	H EW	Var.	48	48	48
4	H Shift	Var.	49	49	49
5	V Linearity	Var.	30	30	30
6	V S-Correction	Fixed	32	32	32
7	V Slope	Fixed	30	30	30
8	V Scroll	Fixed	25	25	25
9	V Zoom	Fixed	48	48	48
10	H Parabola	Var.	45	45	45
11	Upper Corner	Var.	51	51	51
12	Lower Corner	Var.	54	54	54
13	H Trapezium	Var.	22	22	22
14	Bow	Var.	26	26	26
15	Angle	Var.	29	29	29

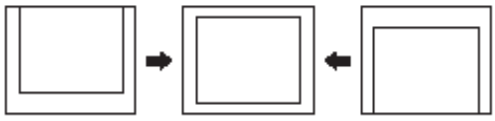
4. Deflection(PAL N 50Hz)

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	V Amp	Var.	0	0	0
2	V Shift	Var.	0	0	0
3	H EW	Var.	0	0	0
4	H Shift	Var.	-6	-6	-6
5	V Linearity	Fixed	0	0	0
6	V S-Correction	Fixed	0	0	0
7	V Slope	Fixed	0	0	0
8	V Scroll	Fixed	0	0	0
9	V Zoom	Fixed	0	0	0
10	H Parabola	Fixed	0	0	0
11	Upper Corner	Fixed	0	0	0
12	Lower Corner	Fixed	0	0	0
13	H Trapezium	Fixed	0	0	0
14	Bow	Fixed	0	0	0
15	Angle	Fixed	0	0	0

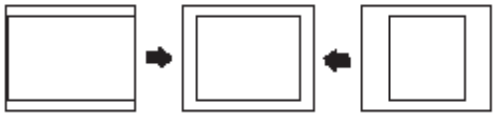
0 V - Amp



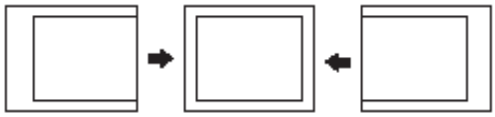
1 V-Shift



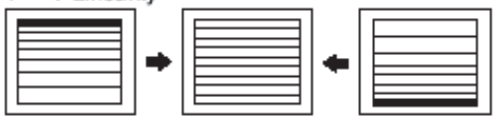
2 H-EW



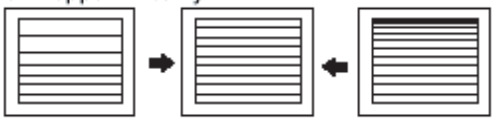
3 H-Shift



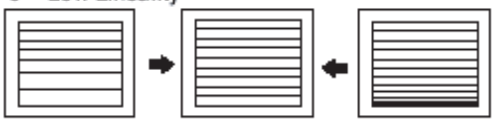
4 V-Linearity



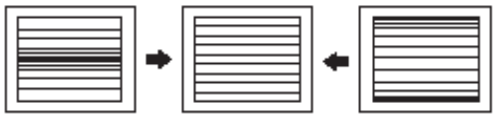
5 Upper Linearity



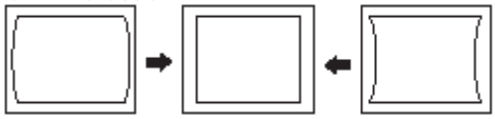
6 Low Linearity



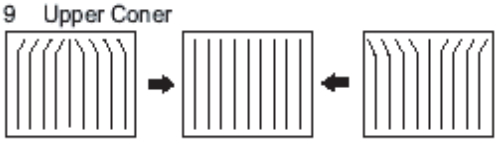
7 V SC



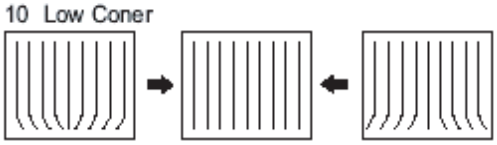
8 H-Parabola



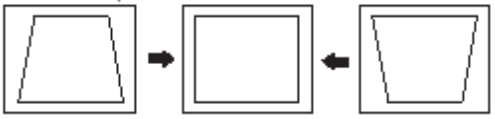
9 Upper Coner



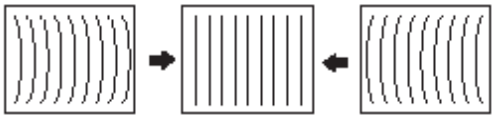
10 Low Coner



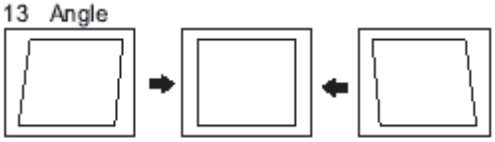
11 H- Trapezuim



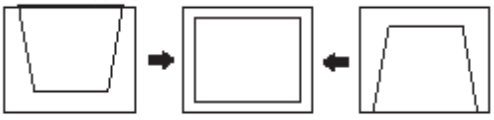
12 Bow



13 Angle



14 V Position



5. Video Adjust1

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	R Cutoff	Var.	20	20	20
2	B Cutoff	Var.	49	49	49
3	R Drive	Var.	29	29	29
4	G Drive	Fixed	15	15	15
5	B Drive	Var.	21	21	21
6	Sub Bright	Var.	17	17	17
7	Sub Contrast	Var.	7	7	7
8	PAL/SECAM Sub Color	Fixed	23	23	23
9	NTSC Sub Color	Fixed	21	21	21
10	NTSC Sub Tint	Fixed	15	15	15
11	YUV Sub Tint	Fixed	32	32	32
12	AKB Option	Fixed	0	0	0
13	Peaking CFO & Delay Mode	Fixed	1	1	1
14	Sub Sharpness-RF	Fixed	10	10	10

6. Video Adjust2

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	Melody Volume	Fixed	25	25	25
2	RF AGC	Var.	24	24	24
3	IF AGC Speed	Fixed	1	1	1
4	VM Mode	Fixed	0	0	0
5	VM Gain	Fixed	0	0	0
6	VM Delay	Fixed	0	0	0
7	Blue Stretch	Fixed	0	0	0
8	G2 Adjust Bright	Fixed	48	48	48
9	Soft Clipping Level	Fixed	1	1	1
10	Peak White Limit	Fixed	8	8	8
11	Cathode Drive Level	Fixed	4	4	4
12	IF Demodulator	Fixed	30	30	30
13	Fast Filter IF PLL	Fixed	0	0	0
14	FOAB	Fixed	3	3	3

7. Video Adjust3

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	PIP Contrast	Fixed	10	10	10
2	PIP Bright	Fixed	4	4	4
3	PIP Tint	Fixed	3	3	3
4	PIP Color	Fixed	8	8	8
5	PIP YC Delay	Fixed	12	12	12
6	PIP PAL V.Pos	Fixed	1	1	1
7	PIP NTSC V. Pos	Fixed	1	1	1
8	PIP H. Pos	Fixed	2	2	2
9	PIP R Cutoff	Fixed	7	7	7
10	PIP G Cutoff	Fixed	6	6	6
11	PIP B Cutoff	Fixed	7	7	7
12	PIP R Drive	Fixed	139	139	139
13	PIP G Drive	Fixed	152	152	152
14	PIP B Drive	Fixed	142	142	142
15	PIP AGC Mode	Fixed	3	3	3

8. Video Adjust4

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	IF Preset Value 1	Fixed	32	32	32
2	IF Preset Value 2	Fixed	32	32	32
3	IF PLL Osc Preset Value	Fixed	0	0	0
4	Preset Gain R	Fixed	20	20	20
5	Preset Gain G	Fixed	20	20	20
6	Preset Gain B	Fixed	20	20	20
7	Turbo Center Frequency	Fixed	0	0	0
8	DCXO Caps/NICAM Center	Fixed	59	59	59
9	DCXO Scaning Control Gain	Fixed	3	3	3
10	Component H-Shift Offset	Fixed	-4	-4	-4

9. Video Adjust5

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	System I Output Signal AMP	Fixed	0	0	0
2	Bypass of Chroma Base Band	Fixed	1	1	1
3	Fixed Beam Current	Fixed	0	0	0
4	Fixed Beam Current 1	Fixed	0	0	0
5	IF Sensitivity	Fixed	0	0	0
6	Forced Digital Interface	Fixed	0	0	0
7	Enable Digital Interface	Fixed	0	0	0
8	Sync Performance Trick Mode	Fixed	0	0	0
9	Vertical Overscan	Fixed	0	0	0
10	Beam Current Limiting	Fixed	0	0	0
11	Comb filter	Fixed	0	0	0
12	De Interlace	Fixed	0	0	0
13	Chroma Trap Mode	Fixed	0	0	0
14	Black Current Measure Line	Fixed	0	0	0
15	EHT Tracking Mode	Fixed	1	1	1

10. YC Delay

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	PAL Delay	Fixed	8	8	8
2	NTSC Delay	Fixed	8	8	8
3	PAL AV Delay	Fixed	8	8	8
4	NTSC AV Delay	Fixed	8	8	8

11. Others

No	Item	Var./Fixed	Model		
			CL29M16MQ	CL29M2MQ	CL29M21FQ CL29T21FQ
1	Service Blanking	Fixed	0	0	0
2	High Current Level	Fixed	1	1	1
3	Black Area	Fixed	2	2	2
4	Black Stretch	Fixed	2	2	2
5	OSD Brightness	Fixed	10	10	10
6	PWL Active	Fixed	1	1	1
7	Bypass Peaking Delay	Fixed	0	0	0
8	Ratio Pre. & After Shoot	Fixed	2	2	2
9	Ratio Posi. & Nega Peaks	Fixed	1	1	1
10	Dynamic Skin	Fixed	0	0	0
11	Gamma & White Stretch	Fixed	1	1	1
12	Video Depandent Coring	Fixed	2	2	2
13	PAL/NTSC Ident Sensitivity	Fixed	1	1	1
14	Comb Filter Diode Clamp	Fixed	1	1	1
15	DC Transfer Ratio	Fixed	1	1	1

12. Bus Stop : Off

13. Checksum : 0000

14. G2 Adjust : Screen Adjust OK/NG/Obove

15. Reset

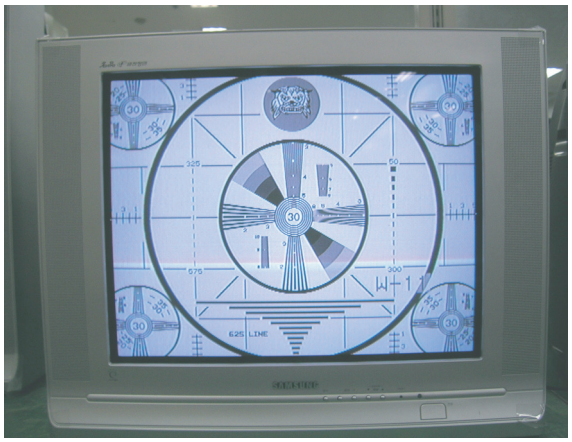
Item	DATA		
MICOM(UOC3) Version NO.	T-RHMNSA-**** 2005/**/**	T-RHMNSA-**** 2005/**/**	T-RHMNSA-**** 2005/**/**
White Balance (NTSC/PAL N-M)	275/275/40ft 265/265/2.0ft	275/275/40ft 265/265/2.0ft	275/275/40ft 265/265/2.0ft

3-4 Service Adjustment

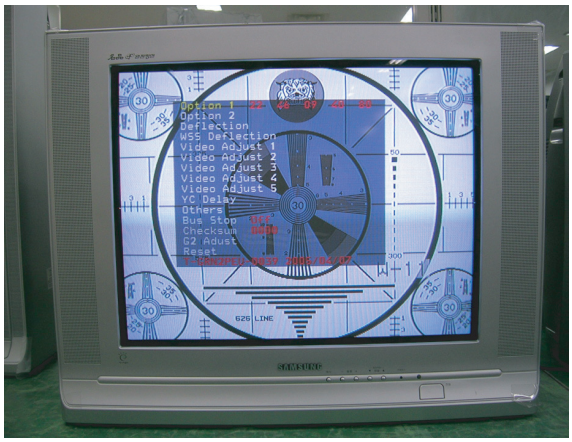
3-4-1 Adjusting the Picture Size

■ Since the K16A chassis includes a deflection adjustment of the Factory Data, adjustments must be performed according to the following procedures when replacing the Main Board.

1. Display the Lion pattern.

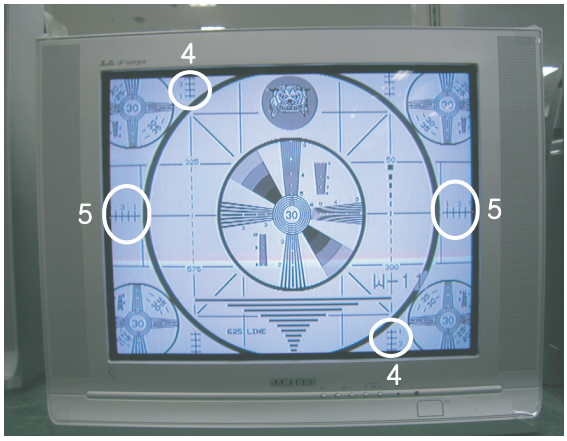


2. Press "Power Off → Mute → 1 → 8 → 2 → Power On" using the remote control and enter Factory Mode.



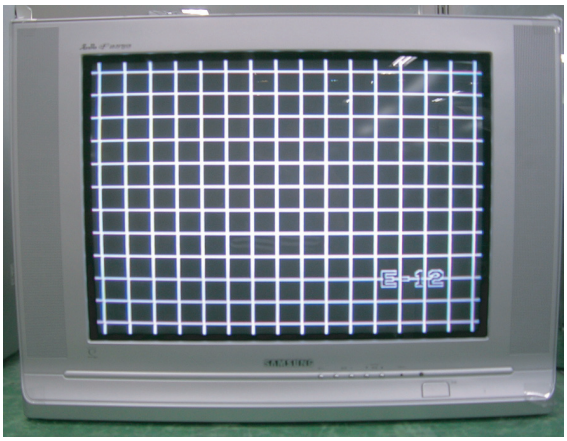
3. Enter Deflection Mode.

4. Adjust the V-AMP, V-SHIFT, H-AMP and H-SHIFT items so that the width becomes 5 and the height becomes 4.



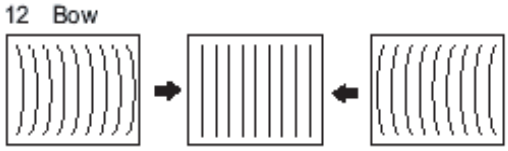
3-4-2 Adjusting the Picture Straight Lines

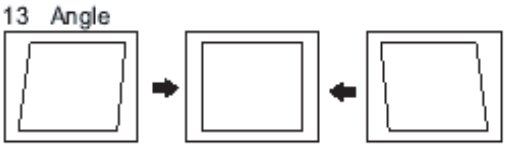
1. Display the Cross Hatch pattern.



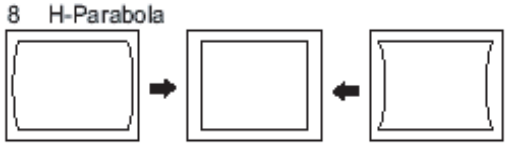
2. Adjust settings other than V-AMP, V-SHIFT, H-AMP and H-SHIFT so that straight lines are displayed without curves.

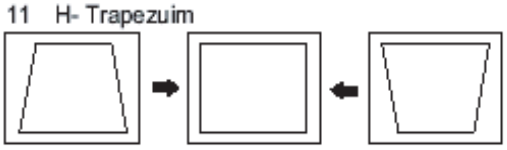
3. Adjust BOW and the Angle settings so that the center line becomes a straight line.



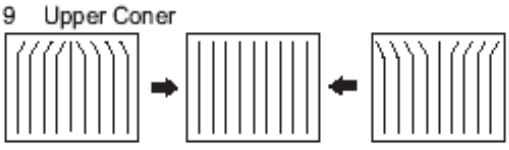


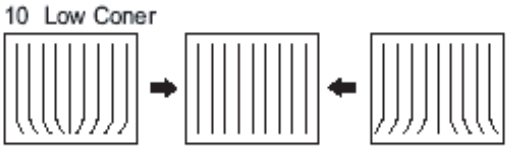
4. Adjust the H-Parabola and H-Trapezium settings so that the left and right lines become straight.



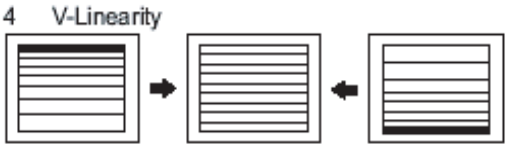


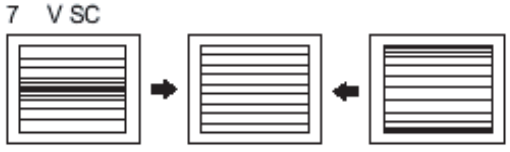
5. Adjust the Upper Corner and the Low Corner settings so that the end of the lines become straight.





6. Adjust the V-Linearity and V-SC settings so that the intervals of the horizontal lines become uniform.





7. When the adjustments are complete, display the Lion pattern and check that the picture size has not been changed. If there is no change, finish the adjustments.

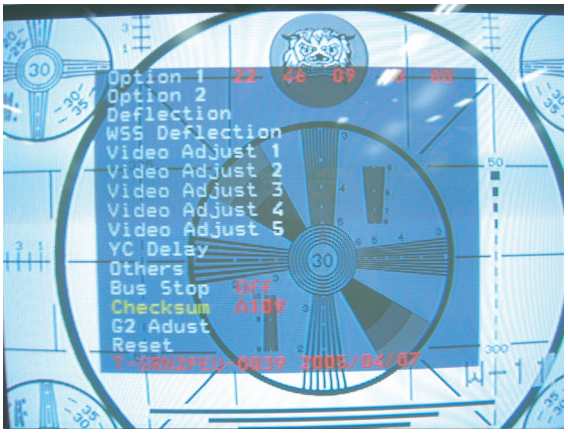
3-5 Software Upgrade

3-5-1 Checking the Version of the Software (Analog SW)

1. To enter Service Mode, press the keys on the remote control according to the following sequence. (in Stand-by status)

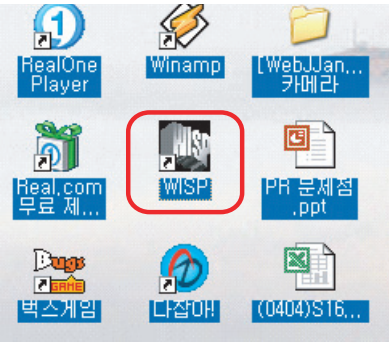
   Mute → 1 → 8 → 2 → Power On

2. When entering Service mode, the software information is displayed at the top of the service mode menu OSD.
   ex) T-RHMNSA-1000 20XX/XX/XX

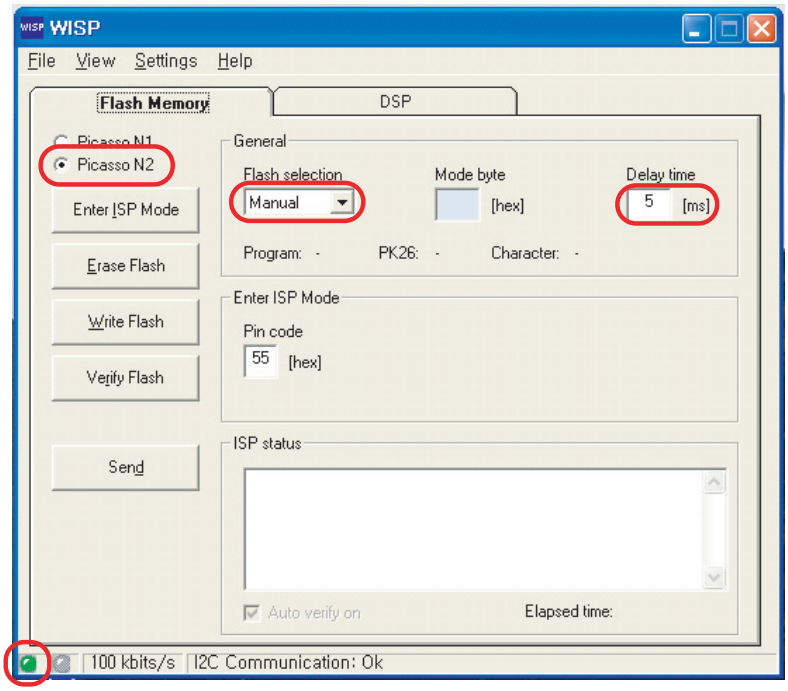


3-5-2 Service Download Procedure

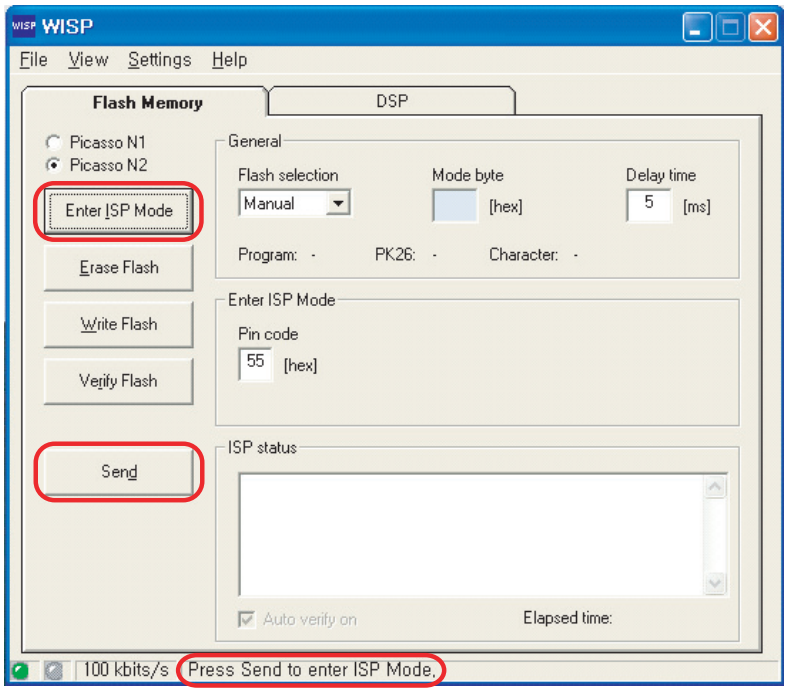
1. Double click the your desktop “WISP” icon.



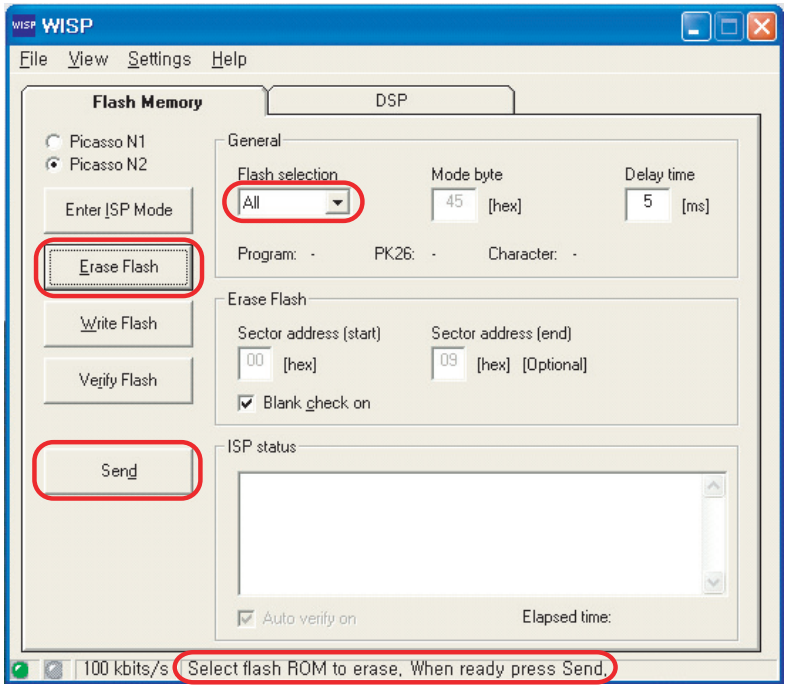
2. Check the standard
   - Check the appoint "Picasso N2"
   - Check the "Flash selection" item is appoint "Manual"
   - You can adjust program delay time for program speed but we use the normal "5[ms]"
   - Check the green lamp if this is sometime red lamp you can not programming



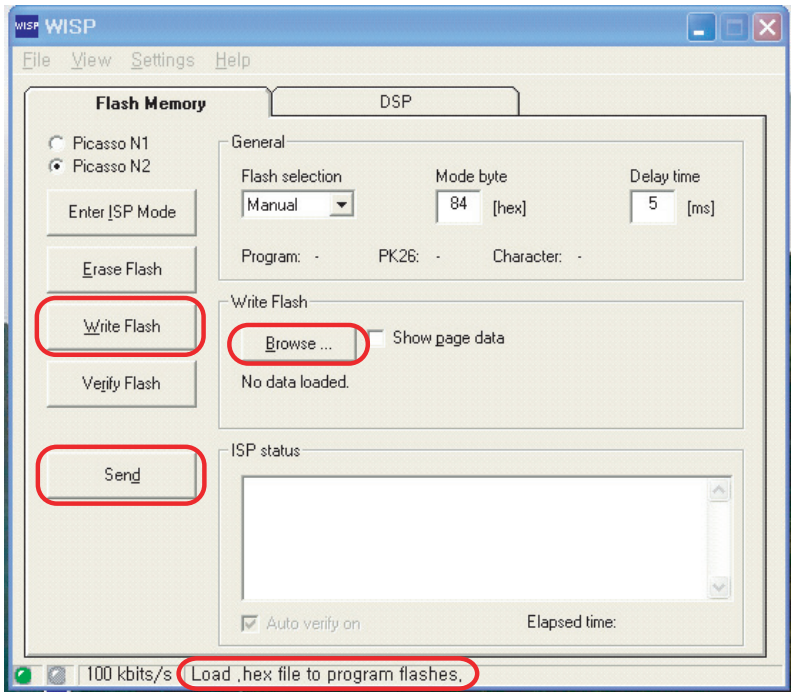
3. Check the IIC line
   - Click the “Enter ISP Mode” button For IIC bus line problem or not
   - Change the “Press Send to enter ISP Mode”
   - Click the “Send” button



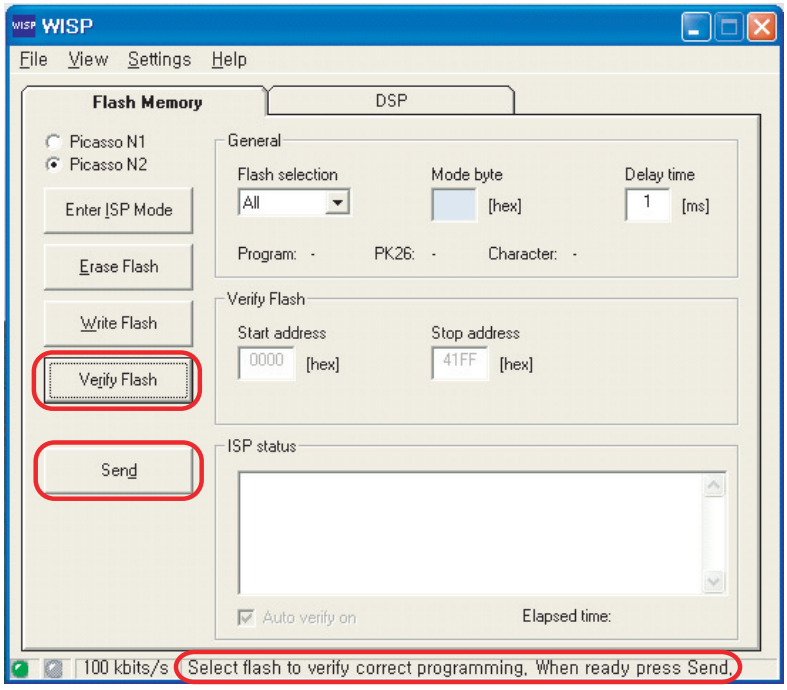
4. Erase before program
   - Click the “Erase Flash” button for before program erase
   - You can select flash selection item but we use normal “All” mode
   - Change the “Select flash ROM to erase. When ready press Send.”
   - Click the “Send” button



5. Write new program
   - Click the “Write Flash” button for new program download
   - Change the “Load.hex file to program flashes.”
   - Click the “Browse” button and find the new program folder in your computer
   - Click the “Send” button



6. Verify new program
   - Click the “Verify Flash” button
   - Change the “Select flash to verify correct programming. When ready press Send.”
   - Click the “Send” button

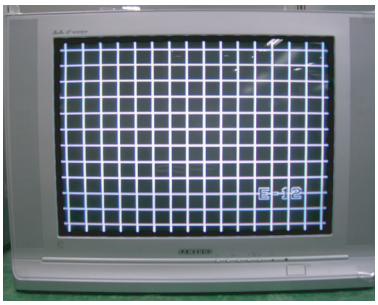


3-6 Replacements & Calibration

3-6-1 Adjusting the Focus

■ Adjustments must be performed according to the following procedures when replacing the K16A chassis, CRT PCB, FBT or CRT.

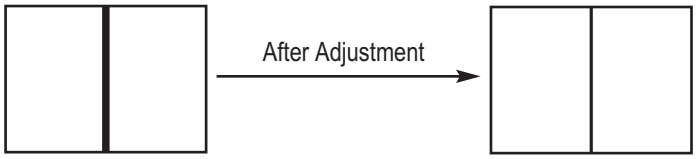
1. Display the Cross Hatch pattern. ⟶

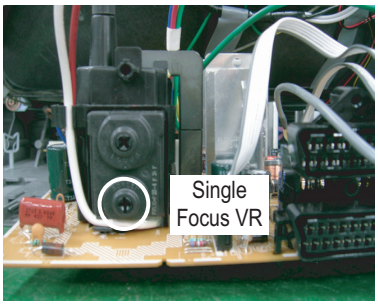


2. Set the Screen Adjustment to "Standard".

3. Turn the Static Focus VR clockwise to the maximum position.
   (End of clockwise direction)

4. Slowly turn the Static Focus VR counter clockwise so that the center vertical line is the most clearly displayed. [adjusted point : Center(2/1)]





5. Check the entire screen focus and repeat steps 3 to 4, if necessary.

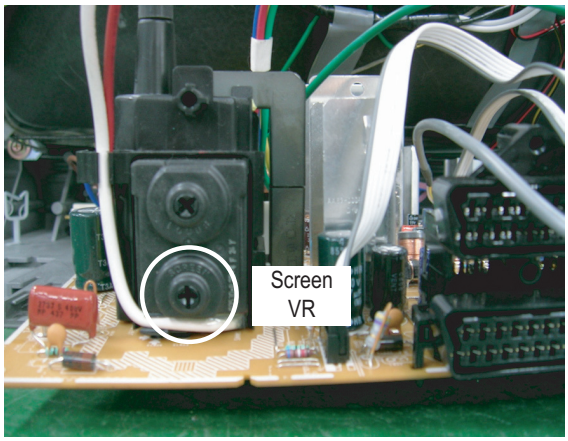
3-6-2 Adjusting the Screen Voltage

1. Select "Power Off → Mute → 1 → 8 → 2 → Power On" to enter Service Mode.

2. Initialize all settings to the values appropriate to the corresponding model.

3. Display the Toshiba pattern.

4. First check IBRM in "G2 Adjust" of Factory and adjust Screen VR until the color of IBRM item turns green.

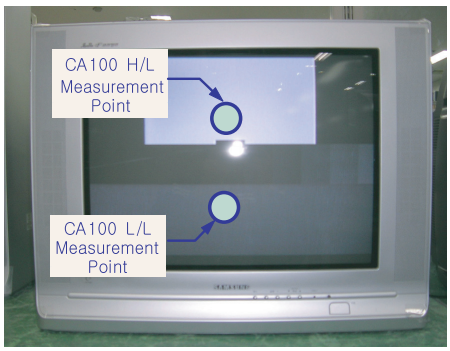


3-6-3 Adjusting the White Balance

1. Select "Power Off → Mute → 1 → 8 → 2 → Power On" to enter Service Mode.

2. Initialize all settings to the values appropriate to the corresponding model.

3. Display the Toshiba pattern and adjust the White Balance using CA100 with the coordinates of the corresponding model.



[CA100]

4. Enter Video Adjust1 of Service Mode. Adjust Low/Light.
   - Adjust Sub Bright to set Y.
   - Adjust B Cutoff to set y.
   - Adjust R Cutoff to set x.

5. Enter Video Adjust1 of Service Mode. Adjust High/Light.
   - Adjust Sub Contrast to set Y.
   - Adjust B Drive to set y.
   - Adjust R Drive to set x.

6. Check Low/Light and readjust it if its value has been changed.

7. If you have readjusted Low/Light, readjust High/Light until the two values are identical to the coordinates of the corresponding model.

※ White Balance Standard Data

No	Item	Model				Required Adjustment
		CL21M21EQ2XXAX CL21T21EQ2	CL21M21MQ2 CL21M2MQ2	CL21M21MQ2XXAZ	CL21M6MQ2X/XAZ	
1	White Balance	275/275/50ft 265/265/2.5ft	275/275/50ft 265/265/2.5ft	275/275/47ft 265/265/2.3ft	275/275/47ft 265/265/2.3ft	White Balance (Standard Data)

3-6-4 Check List for the Screen Voltage and White Balance Adjustment

1. The Screen Voltage and White Balance are connected each other, and both of them have to be configured to the correct values.

2. Adjust the White Balance after the Screen Voltage was adjusted, and check if the Screen Voltage is normal after adjusting the White Balance.

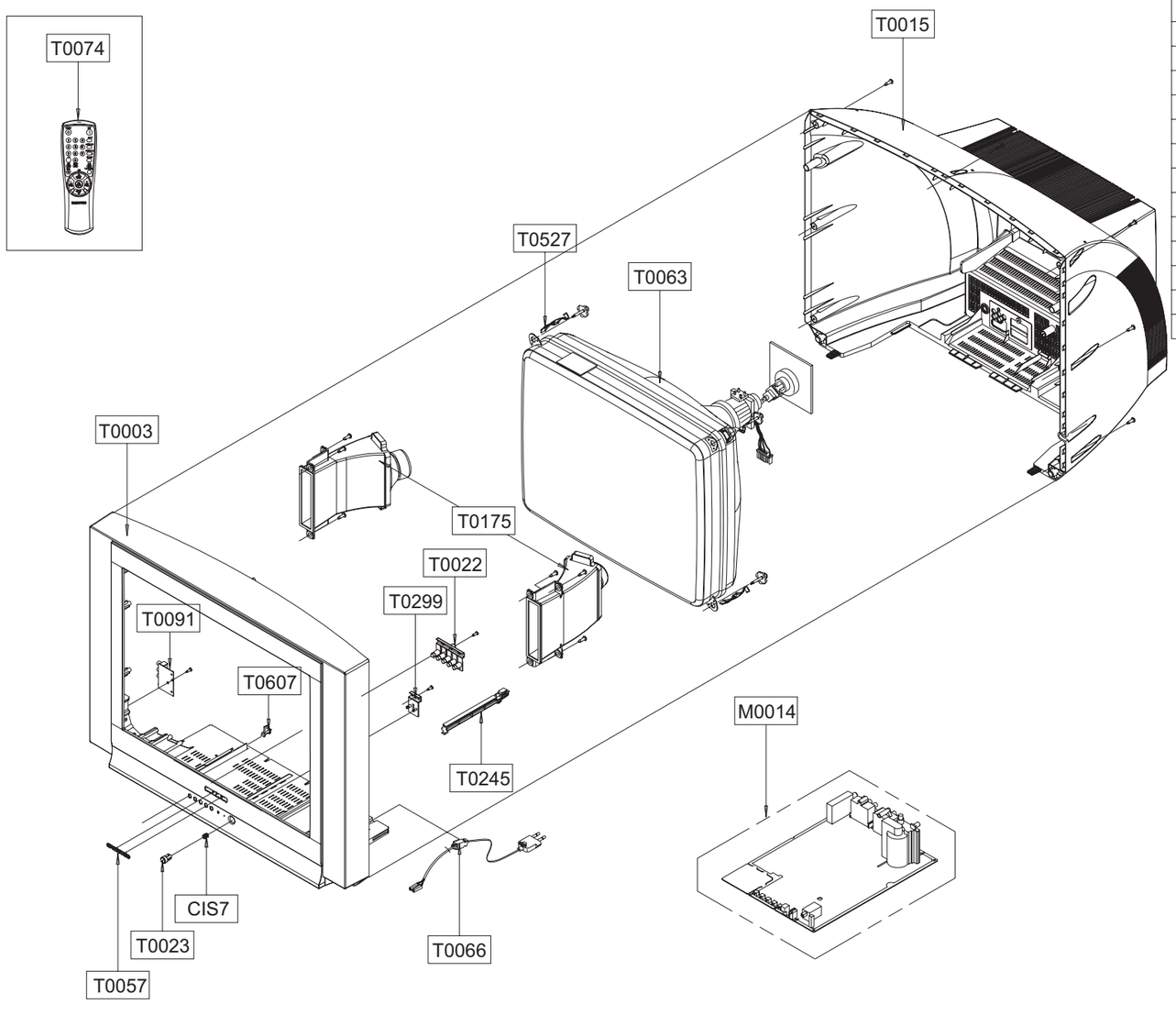
3. If the White Balance is readjusted, check the Screen Voltage again.

4. When the adjustment is finished, check the following checklist.
   - If there is a spot on the screen when turning the TV set off/on, adjust the Screen Voltage again.
   - If there is a ghost line on the screen, adjust the Screen Voltage again.

4. Exploded View & Part List

4-1 CL29K5MQ2X/XAX

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr



Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS7	AA61-60003J	SPRING ETC-CS	-,SUS304,-,-,OD6,N7,OD6,-,	1	S.N.A	
M0014	AA94-15672B	ASSY PCB MAIN	CL29M16MQ2XXAX	1	S.A	
T0003	AA64-03418G	CABINET FRONT	29K5,HIPS,HB,GR503,SV012P,	1	S.N.A	
T0015	AA64-03417B	CABINET BACK	29K5,HIPS,HB,G4309	1	S.A	
T0022	AA64-02635A	KNOB CONTROL	29K5,ABS HB,G3676,SVM-3012	1	S.A	
T0023	AA64-02629A	KNOB POWER	29K5,ABS HB,G3676,SVM-3012	1	S.A	
T0057	AA64-70117B	BADGE-BRAND	,AL,T1.5,10.6,L65,BLK,SILVER	1	S.A	
T0063	AA03-00420A	CRT COLOR	A68QFN793X001,+380,1.09,20.0,1	1	S.A	
T0066	AA96-20112A	ASSY POWER CORD	-,EP2/NO,H/C300,KJ10,THA	1	S.A	
T0074	AA59-00316B	REMOCON	TM75,ET,32,G6148A,NT,EX	1	S.A	
T0091	AA94-13842A	ASSY PCB MISC-A/V SIDE	CT-29K10G,KS7A	1	S.A	
T0175	AA96-03683A	ASSY SPEAKER P	8ohm,10W,700/500,Tinydome	1	S.A	
T0245	AA61-00711D	HOLDER-PCB	29U1,U2,HIPS VO,BK502(HB-PROP	1	S.A	
T0299	AA64-02632A	WINDOW-RMC LED	29K5,PC,CLR	1	S.A	
T0527	AA61-01373A	HOLDER-D COIL	29K5,NYLON 66	4	S.N.A	
T0607	AA61-40113A	STOPPER-PCB	501H,HIPS,-,-,HB,NTR,-	1	S.A	

5. Electrical Part List

5-1 CL29K5MQ2X/XAX

You can search for the updated part code through ITSELF web site.
URL:http://itself.sec.samsung.co.kr

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
		ASSY CHASSIS				
M0017	AA91-09829D	ASSY CHASSIS	CL29K5MQ2X/XAX,K16A,RHUMBA	1	S.N.A	
T0091	AA94-13842A	ASSY PCB MISC-A/V SIDE	CT-29K10G,KS7A	1	S.A	
JA701	3722-001031	JACK-PIN	3P,AU,BLK,ANGLE	1	S.A	
T0245	AA39-20009D	LEAD CONNECTOR-ASSY	,1P,500,YFH800-01,16	1	S.A	
T0245	AA39-20068E	LEAD CONNECTOR-ASSY	,8P,500,YBNH025-08,6	1	S.A	
T0603	AA63-10002A	BAND-TIE	,NYLON66 V2,L100,NTR,0.7 ,0.7 G	1	S.N.A	
T0238	AA97-14817A	ASSY AUTO	CT-29K10G,KS7A	1	S.N.A	
C701	2202-000121	C-CERAMIC,MLC-AXIAL	0.1nF,10%,50V,Y5P,-,	1	S.A	
C702	2202-000121	C-CERAMIC,MLC-AXIAL	0.1nF,10%,50V,Y5P,-,	1	S.A	
L701	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L702	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
T0091	AA41-00345A	PCB-A/V SIDE	CS29K1,FR-1,1L,A,1.6T,245x2	1	S.N.A	
T0245	0202-001522	SOLDER-WIRE FLUX	LFA3-107,-,D1.2,96.5Sn/	0.001	S.N.A	
M0014	AA94-15672B	ASSY PCB MAIN	CL29M16MQ2XXAX	1	S.A	
D408	0402-001295	DIODE-RECTIFIER	GUR460L-5700,600V,4A,DO-	1	S.A	
⚠ D801S	0402-001477	DIODE-BRIDGE	GSIB460,600V,4A,SIP-4,ST	1	S.A	
D404	0402-001599	DIODE-RECTIFIER	DGP30L,1500,3A,DO-201AD(	1	S.A	
D811	0402-001603	DIODE-RECTIFIER	MUR480E,800V,4A,DO-201AD	1	S.A	
D807	0402-001604	DIODE-RECTIFIER	MUR420,200V,4A,DO-201AD,	1	S.A	
⚠ PC801S	0604-001032	PHOTO-COUPLER	TR,170-260%,300mW,DIP-4,ST	1	S.A	
IC112	1103-001211	IC-EEPROM	24C16,2Kx8Bit,DIP,8P,10.16x7.1	1	S.A	
T0900	1404-001045	THERMISTOR-NTC	4.7ohm,4.565A,2900K,-,-,-	1	S.A	
P803T	1404-001264	THERMISTOR-PTC	4.5OHM,+30/-20%,220V,290V	1	S.A	
⚠ CY802S	2201-000446	C-CERAMIC,DISC	3.3NF,20%,400V,Y5U,BK,15X	1	S.A	
C405	2301-001338	C-FILM,LEAD-OTHER	0.68NF,5%,1.6KV,BK,28X	1	S.A	
⚠ CR403S	2301-001456	C-FILM,LEAD-OTHER	5.1NF,5%,1.6KV,BK,29X9	1	S.A	
⚠ CR404S	2303-000296	C-FILM,LEAD-PPF	18nF,5%,630V,BK,20x16x9.	1	S.A	
⚠ CX801S	2306-000318	C-FILM,LEAD-PPF	220nF,20%,275V,BK,26x7x1	1	S.A	
C803	2401-002251	C-AL	470uF,20%,200V,GP,BK,25x40mm,1	1	S.A	
X201	2801-003316	CRYSTAL-UNIT	24.576MHz,30ppm,28-AAM,20pF	1	S.A	
SF101	2904-001107	FILTER-SAW AV	45.75MHz,SIP5K,TP,12.6dB,N	1	S.A	
SF102	2904-001418	FILTER-SAW AV	45.75MHZ,-,ST,-,-,-	1	S.A	
SW906	3404-001004	SWITCH-TACT	12V,50mA,160gf,8.4x22.7mm,SP	1	S.A	
RL801	3501-001053	RELAY-POWER	5Vdc,530mW,10000mA,1FormA,15	1	S.A	
FD802	3601-000281	FUSE-CARTRIDGE	250V,4A,TIME-LAG,GLASS,5.	1	S.A	
V999S	3704-001197	SOCKET-CRT	8P+SEN,29PI,22.5PI,NI+SN,-	1	S.A	
CN501	3711-001084	HEADER-BOARD TO CABLE	BOX,8P,1R,2.5MM,ST	1	S.A	
CN601	3711-003043	HEADER-BOARD TO CABLE	BOX,4P,1R,2.5MM,ST	1	S.A	
CN503	3711-003241	HEADER-BOARD TO CABLE	BOX,14P,1R,2.5MM,S	1	S.A	
JA701A	3722-001333	JACK-PIN	9P,NI,BLK,ANGLE	1	S.A	
T444	AA26-00057C	TRANS FBT	FUH29A001G,CPTTV,3.56,4177,FER	1	S.A	
T401	AA26-50001R	TRANS-H.DRIVE	-,-,-,80MH,-,-,520UH,-,-,-	1	S.A	
T0296	AA27-00035A	COIL LINEARITY	-,30UH,DR15X18,0.8MM,19X4	1	S.A	
T0010	AA27-00286A	COIL CHOKE	1MH,CPTTV,1MH,10%,0.5OHM,1A,D	1	S.A	
⚠ LX801S	AA29-00015A	FILTER LINE NOISE	WS32W8,28-20MH 1.5A,+-	1	S.A	
D0254	AA32-00015A	MODULE REMOCON	FRP-3521H31,38KHZ,940MM,M	1	S.A	
M2893	AA39-00376B	LEAD CONNECTOR	ET-PAL CIS,UL1007/2547#26	1	S.A	
CIS3	AA40-00016A	TUNER-F/S	TDQ-6F/13F2S,NTSC,181CH,45.75M	1	S.A	
GT301	AA60-40012F	PIN-GT	4P,2.36PI,6/12/14mm,NYLON66,LOCKI	1	S.N.A	
GT801	AA60-40012G	PIN-GT	3P,2.36PI,10/5mm,NYLON66,LOCKING	1	S.N.A	
D809A	AA96-00243D	ASSY HEAT SINK P	D06U20S,AA62-00045B,BRI	1	S.N.A	
M0081	6003-000335	SCREW-TAPTITE	RH,+,2S,M3,L8,ZPC(YEL),SWR	1	S.N.A	
T0175	AA62-00045A	HEAT SINK-PS	-,-,T1.0,-,-,DREAM,-,-,-,-,	1	S.N.A	
	0402-001374	DIODE-RECTIFIER	FFPF06U20S,200V,6A,TO-22	1	S.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.1	S.N.A	
IC804	AA96-00243K	ASSY HEAT SINK P	-,REGULATOR,AA62-000450	1	S.N.A	
M0081	6003-000335	SCREW-TAPTITE	RH,+,2S,M3,L8,ZPC(YEL),SWR	1	S.N.A	
T0175	AA62-00045A	HEAT SINK-PS	-,-,T1.0,-,-,DREAM,-,-,-,-,	1	S.N.A	
T0087	1203-001006	IC-POSI.FIXED REG.	78R05,TO-220F,4P,-,PL	1	S.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.1	S.N.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
IC802	AA96-00243Q	ASSY HEAT SINK P	SCREW,AA62-00045A,1203-	1	S.N.A	
M0081	6003-000335	SCREW-TAPTITE	RH,+,2S,M3,L8,ZPC(YEL),SWR	1	S.N.A	
T0175	AA62-00045A	HEAT SINK-PS	-,-,T1.0,-,-,DREAM,-,-,-,-,	1	S.N.A	
T0087	1203-001944	IC-POSI.FIXED REG.	78RM33,TO-220,3P,-,PL	1	S.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.1	S.N.A	
IC803	AA96-00243R	ASSY HEAT SINK P	AA62-00045A,KA78R08,TVD	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.1	S.N.A	
M0081	6003-000333	SCREW-TAPTITE	RH,+,2S,M3,L10,ZPC(YEL),SW	1	S.N.A	
T0175	AA62-00045A	HEAT SINK-PS	-,-,T1.0,-,-,DREAM,-,-,-,-,	1	S.N.A	
T0087	1203-004010	IC-POSI.FIXED REG.	KA78R08CTU,TO-220F,4P	1	S.A	
LD901	AA96-00555A	ASSY LED GUIDE	-,-,UEX-LD-030,GREEN	1	S.N.A	
IC301	AA96-00623F	ASSY HEAT SINK P	LA78045,SCREW,AA62-0005	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.1	S.N.A	
M0081	6003-000334	SCREW-TAPTITE	RH,+,2S,M3,L6,ZPC(YEL),SWR	1	S.N.A	
T0175	AA62-00056A	HEAT SINK-PS	-,-,T1.0,-,41*35*70,D2,-,-,	1	S.N.A	
T0088	1204-002183	IC-VERTICAL PROCESSO	LA78045,TO220,7P,15	1	S.A	
Q404	AA96-00624G	ASSY HEAT SINK P	SCREW,AA62-00057B,FQP63	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.2	S.N.A	
T0175	AA62-00057B	HEAT SINK-PS	CT-29K12P,A1050S,1.0,41,60,	1	S.N.A	
M0081	6003-000334	SCREW-TAPTITE	RH,+,2S,M3,L6,ZPC(YEL),SWR	1	S.N.A	
Q409	0505-001723	FET-SILICON	FQP630TSTU,N,200V,9A,0.4OHM,	1	S.A	
Q401	AA96-00624J	ASSY HEAT SINK P	SCREW,AA62-00057A,C5936	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.2	S.N.A	
M0081	6003-000333	SCREW-TAPTITE	RH,+,2S,M3,L10,ZPC(YEL),SW	1	S.N.A	
T0105	AA60-30001A	WASHER-PLATE	M3,ID3.5,15X8.5,T1.0,SBHG	1	S.N.A	
T0175	AA62-00057A	HEAT SINK-PS	-,-,T1.0,-,41*20*60,D2,-,-,	1	S.N.A	
H/S	0502-001264	TR-POWER	2SC5936,NPN,40000mW,TOP-3E,ST,5	1	S.A	
⚠ IC801S	AA96-50373P	ASSY HEAT SINK P	AA62-30181K,STR-W6750F,	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.2	S.N.A	
M0081	6003-000333	SCREW-TAPTITE	RH,+,2S,M3,L10,ZPC(YEL),SW	1	S.N.A	
T0066	AA62-30181V	HEAT SINK-ES	CT-29M16V,AL6063,T2.0,64,40	1	S.N.A	
IC063	AA13-00116A	IC HYBRID	STR-W6750F,6,-20 to +115,TO-3P	1	S.A	
M0014	AA97-16238B	ASSY AUTO-MAIN	29M16,K16A,XAX,LATIN,W/O	1	S.N.A	
D101	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D201	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D305	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D409	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D510	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D511	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D512	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D513	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D606	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D630	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D631	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
DZ403	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
DZ816	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.A	
D501	0401-000006	DIODE-SWITCHING	BAV21,250V,200mA,DO-35,T	1	S.A	
D502	0401-000006	DIODE-SWITCHING	BAV21,250V,200mA,DO-35,T	1	S.A	
D503	0401-000006	DIODE-SWITCHING	BAV21,250V,200mA,DO-35,T	1	S.A	
D804	0401-000006	DIODE-SWITCHING	BAV21,250V,200mA,DO-35,T	1	S.A	
D805	0401-000006	DIODE-SWITCHING	BAV21,250V,200mA,DO-35,T	1	S.A	
D402	0402-000132	DIODE-RECTIFIER	1N4004,400V,1A,DO-41,TP	1	S.A	
D403	0402-000132	DIODE-RECTIFIER	1N4004,400V,1A,DO-41,TP	1	S.A	
D808	0402-000132	DIODE-RECTIFIER	1N4004,400V,1A,DO-41,TP	1	S.A	
D813	0402-000493	DIODE-RECTIFIER	1R5GU41,400V,1.5A,DO-15L	1	S.A	
D405	0402-000534	DIODE-RECTIFIER	RG10V,400V,1.2A,DO-201,T	1	S.A	
D401	0402-000537	DIODE-RECTIFIER	RH1A,600V,0.6A,DO-204AC,	1	S.A	
D406	0402-000540	DIODE-RECTIFIER	RU20A,600V,1.5A,-,TP	1	S.A	
D407	0402-000540	DIODE-RECTIFIER	RU20A,600V,1.5A,-,TP	1	S.A	
D303	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1A,DO-41,TP	1	S.A	
D504	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1A,DO-41,TP	1	S.A	
D803	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1A,DO-41,TP	1	S.A	
DZ804	0403-000508	DIODE-ZENER	MTZJ5.6B,5.45-5.73V,500mW,DO	1	S.A	
DZ810	0403-000508	DIODE-ZENER	MTZJ5.6B,5.45-5.73V,500mW,DO	1	S.A	
DZ903	0403-000508	DIODE-ZENER	MTZJ5.6B,5.45-5.73V,500mW,DO	1	S.A	
DZ904	0403-000508	DIODE-ZENER	MTZJ5.6B,5.45-5.73V,500mW,DO	1	S.A	
DZ306	0403-000700	DIODE-ZENER	TZP33A,5%,1000mW,DO-41,TP	1	S.A	
DZ811	0403-000700	DIODE-ZENER	TZP33A,5%,1000mW,DO-41,TP	1	S.A	
DZ812	0403-000700	DIODE-ZENER	TZP33A,5%,1000mW,DO-41,TP	1	S.A	
DZ605	0403-000714	DIODE-ZENER	MTZJ3.3B,3.32-3.53V,500mW,DO	1	S.A	
DZ819	0403-000714	DIODE-ZENER	MTZJ3.3B,3.32-3.53V,500mW,DO	1	S.A	
DZ510	0403-000716	DIODE-ZENER	MTZJ4.7B,4.59-4.77V,500mW,DO	1	S.A	
DZ802	0403-000717	DIODE-ZENER	MTZJ5.1B,4.94-5.2V,500mW,DO-	1	S.A	
DZ807	0403-000718	DIODE-ZENER	MTZJ6.8B,6.52-6.79V,500mW,DO	1	S.A	
DZ901	0403-000719	DIODE-ZENER	MTZJ7.5B,7.11-7.44V,500mW,DO	1	S.A	
DZ902	0403-000719	DIODE-ZENER	MTZJ7.5B,7.11-7.44V,500mW,DO	1	S.A	
DZ501	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
DZ502	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ503	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ701	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ702	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ703	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ704	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ705	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ707	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ708	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ712	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ713	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ714	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ813	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ818	0403-000720	DIODE-ZENER	MTZJ9.1B,8.57-9.01V,500mW,DO	1	S.A	
DZ303	0403-001221	DIODE-ZENER	UZ39BSB,35.36-37.19V,500mW,D	1	S.A	
DZ905	0403-001317	DIODE-ZENER	MTZJ3.0B,3.01-3.22V,500mW,DO	1	S.A	
DZ814	0403-001320	DIODE-ZENER	MTZJ6.2C,6.16-6.4V,500mW,DO-	1	S.A	
DZ815	0403-001321	DIODE-ZENER	MTZJ6.8C,6.7-6.97V,500mW,DO-	1	S.A	
DZ301	0403-001329	DIODE-ZENER	MTZJ24B,22.75-23.73V,500mW,D	1	S.A	
DZ302	0403-001329	DIODE-ZENER	MTZJ24B,22.75-23.73V,500mW,D	1	S.A	
DZ305	0403-001329	DIODE-ZENER	MTZJ24B,22.75-23.73V,500mW,D	1	S.A	
Q207	0501-000283	TR-SMALL SIGNAL	KSA539,PNP,400mW,TO-92,T	1	S.A	
Q261	0501-000283	TR-SMALL SIGNAL	KSA539,PNP,400mW,TO-92,T	1	S.A	
Q903	0501-000283	TR-SMALL SIGNAL	KSA539,PNP,400mW,TO-92,T	1	S.A	
Q904	0501-000283	TR-SMALL SIGNAL	KSA539,PNP,400mW,TO-92,T	1	S.A	
Q262	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q501	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q502	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q802	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q805	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q806	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q902	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q905	0501-000389	TR-SMALL SIGNAL	KSC815,NPN,400mW,TO-92,T	1	S.A	
Q403	0502-001007	TR-POWER	KSC2073-H2,NPN,25W,TO-220,ST,6	1	S.A	
IC012	1203-001217	IC-POSI.ADJUST REG.	431,TO-92,3P,4.58MIL	1	S.A	
VP801	1405-000152	VARISTOR	560V,2500A,14x8.5mm,TP	1	S.A	
⚠ VX801S	1405-000187	VARISTOR	615Vdc,1250A,12.5x7mm,TP	1	S.A	
JP105	2001-000005	R-CARBON	390ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R913	2001-000005	R-CARBON	390ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R833	2001-000007	R-CARBON	3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R930	2001-000007	R-CARBON	3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R905	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R919	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R424	2001-000012	R-CARBON	680KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R306	2001-000016	R-CARBON(S)	1OHM,5%,1/2W,AA,TP,2.4X6.4MM	1	S.A	
R406	2001-000028	R-CARBON(S)	100OHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R807	2001-000037	R-CARBON(S)	330OHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R621	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R622	2001-000241	R-CARBON	1.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R428	2001-000258	R-CARBON	1.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
C501	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
C502	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
C503	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
JP104	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
L101	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
L108	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R123	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R215	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R216	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R217	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R301	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R307	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R419	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R501	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R504	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R505	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R551	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R603	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R609	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R610	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R726	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R727	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R728	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R729	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R730	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R906	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R908	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
R910	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R920	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R933	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R935	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R936	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R941	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
RP101	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
RP102	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R218	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R311	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R312	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R620	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R623	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R208	2001-000302	R-CARBON	10OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R927	2001-000302	R-CARBON	10OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R928	2001-000302	R-CARBON	10OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R114	2001-000319	R-CARBON	120KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R105	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R422	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R929	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R911	2001-000347	R-CARBON	13KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R912	2001-000347	R-CARBON	13KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R917	2001-000347	R-CARBON	13KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R262	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R263	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R902	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R918	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R901	2001-000440	R-CARBON	1OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R925	2001-000440	R-CARBON	1OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R914	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R124	2001-000515	R-CARBON	220OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R939	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R429	2001-000563	R-CARBON	27KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R163	2001-000577	R-CARBON	2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R924	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R926	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R205	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R915	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R403	2001-000622	R-CARBON	300KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R113	2001-000645	R-CARBON	330KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R521	2001-000679	R-CARBON	36KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R318	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R520	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R522	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R523	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R841	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R903	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R921	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R109	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R427	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R923	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R932	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
L202	2001-000793	R-CARBON	47OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R607	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R608	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R706	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R707	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R708	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R709	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R719	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R720	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R721	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R722	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R606	2001-000837	R-CARBON	51KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R211	2001-000857	R-CARBON	560OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R210	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R916	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R213	2001-000908	R-CARBON	62KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R167	2001-000924	R-CARBON	680OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R934	2001-000924	R-CARBON	680OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
RP100	2001-000924	R-CARBON	680OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R106	2001-000947	R-CARBON	7.5KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R701	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R702	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R703	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R704	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R705	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
R710	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R711	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R712	2001-000969	R-CARBON	75OHM,5%,1/8W,AA,TP,1.8X3.2MM	1	S.A	
R514	2001-001062	R-CARBON(S)	10MOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R402	2001-001070	R-CARBON(S)	120OHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R401	2001-001072	R-CARBON(S)	12OHM,5%,1/2W,AA,TP,2.4X6.4M	1	S.A	
R829	2001-001078	R-CARBON(S)	15KOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R830	2001-001078	R-CARBON(S)	15KOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R831	2001-001078	R-CARBON(S)	15KOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R832	2001-001079	R-CARBON(S)	15OHM,5%,1/2W,AA,TP,2.4X6.4M	1	S.A	
R805	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4M	1	S.A	
R817	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4M	1	S.A	
R820	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4M	1	S.A	
R810	2001-001097	R-CARBON(S)	2.4KOHM,5%,1/2W,AA,TP,2.4X6.	1	S.A	
R404	2001-001114	R-CARBON(S)	270OHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R818	2001-001131	R-CARBON(S)	33KOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R836	2001-001138	R-CARBON(S)	390OHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R808	2001-001150	R-CARBON(S)	470KOHM,5%,1/2W,AA,TP,2.4X6.	1	S.A	
R809	2001-001150	R-CARBON(S)	470KOHM,5%,1/2W,AA,TP,2.4X6.	1	S.A	
R895	2001-001152	R-CARBON(S)	47KOHM,5%,1/2W,AA,TP,2.4X6.4	1	S.A	
R405	2001-001153	R-CARBON(S)	47ohm,5%,1/2W,AA,TP,2.4x6.4m	1	S.A	
R411	2001-001174	R-CARBON	62KOHM,5%,1/2W,AA,TP,2.4X6.4MM	1	S.A	
⚠ RP801S	2002-001010	R-COMPOSITION	1.8Mohm,5%,1/2W,AA,TP,3.7x	1	S.A	
⚠ RY801S	2002-001012	R-COMPOSITION	8.2Mohm,5%,1/2W,AA,TP,3.7x	1	S.A	
R501H	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R502H	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R511	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R426	2003-000540	R-METAL OXIDE(S)	1Kohm,5%,2W,AF,TP,4x12m	1	S.A	
R802	2003-000586	R-METAL OXIDE(S)	22Kohm,5%,2W,AF,TP,4x12	1	S.A	
R803	2003-000586	R-METAL OXIDE(S)	22Kohm,5%,2W,AF,TP,4x12	1	S.A	
R804	2003-000586	R-METAL OXIDE(S)	22Kohm,5%,2W,AF,TP,4x12	1	S.A	
R423	2003-001042	R-METAL OXIDE(S)	5.6Kohm,5%,2W,AF,TP,3.9	1	S.A	
R823	2003-002020	R-METAL OXIDE(S)	56Kohm,5%,2W,AF,TP,3.9x	1	S.A	
RP16	2003-002064	R-METAL OXIDE(S)	7.5OHM,5%,2W,AF,TP,3.9X	1	S.A	
RP17	2003-002064	R-METAL OXIDE(S)	7.5OHM,5%,2W,AF,TP,3.9X	1	S.A	
R407	2003-002151	R-METAL OXIDE	18KOHM,5%,2W,AG,TP,6X16MM	1	S.A	
R309	2003-002205	R-METAL OXIDE(S)	330ohm,5%,2W,AG,TP,3.9X	1	S.A	
R310	2003-002205	R-METAL OXIDE(S)	330ohm,5%,2W,AG,TP,3.9X	1	S.A	
R425	2004-000433	R-METAL	1Kohm,1%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R302	2004-001371	R-METAL(S)	1.5Kohm,1%,1/2W,AA,TP,2.4x6.4	1	S.A	
R305	2004-001371	R-METAL(S)	1.5Kohm,1%,1/2W,AA,TP,2.4x6.4	1	S.A	
R821	2004-001377	R-METAL(S)	120Kohm,1%,1/2W,AA,TP,2.4x6.4	1	S.A	
R408	2004-001390	R-METAL(S)	1Kohm,2%,1/2W,AA,TP,2.4x6.4mm	1	S.A	
R816	2004-001891	R-METAL(S)	133Kohm,1%,1/2W,AA,TP,2.5x6.5	1	S.A	
R169	2004-001914	R-METAL	39Kohm,2%,1/8W,AA,TP,1.8x3.5mm	1	S.A	
R410	2004-001971	R-METAL(S)	6.2Kohm,1%,1/2W,AA,TP,2.5x6.5	1	S.A	
R819	2004-001983	R-METAL(S)	2.49Kohm,1%,1/2W,AA,TP,2.4x6.	1	S.A	
R409	2004-004015	R-METAL(S)	9.1Kohm,1%,1/2W,AA,TP,2.5x6.5	1	S.A	
R413	2008-000253	R-FUSIBLE(S)	0.47ohm,5%,1W,AF,TP,3.9x10m	1	S.A	
R414	2008-000264	R-FUSIBLE(S)	1ohm,5%,1W,AF,TP,3.9x10mm	1	S.A	
R815	2008-000266	R-FUSIBLE(S)	1ohm,5%,2W,AF,TP,3.9x10mm	1	S.A	
R418	2008-000292	R-FUSIBLE(S)	3.3ohm,5%,2W,AF,TP,3.9x10mm	1	S.A	
R827	2008-001011	R-FUSIBLE(S)	0.18ohm,10%,2W,AF,TP,3.9x10	1	S.A	
R304	2008-001015	R-FUSIBLE(S)	1.5ohm,5%,2W,AF,TP,3.9x10mm	1	S.A	
R303	2008-001076	R-FUSIBLE(S)	1.8ohm,5%,2W,AF,TP,3.9x10mm	1	S.A	
C306	2201-000003	C-CERAMIC,DISC	0.068NF,10%,2KV,SL,TP,7X5	1	S.A	
C424	2201-000132	C-CERAMIC,DISC	0.1NF,10%,500V,Y5P,TP,6.5	1	S.A	
C302	2201-000192	C-CERAMIC,DISC	0.01nF,0.25pF,500V,C0G,-,	1	S.A	
C823	2201-000291	C-CERAMIC,DISC	1NF,10%,500V,Y5P,TP,7.5X3	1	S.A	
C828	2201-000374	C-CERAMIC,DISC	0.22NF,5%,50V,C0G,TP,10.5	1	S.A	
C820	2201-000406	C-CERAMIC,DISC	0.27NF,10%,2KV,Y5P,TP,6.3	1	S.A	
C408	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C411	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C413	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C818	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C888	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C403	2201-000599	C-CERAMIC,DISC	0.56NF,10%,500V,Y5P,TP,5.	1	S.A	
C845	2201-000599	C-CERAMIC,DISC	0.56NF,10%,500V,Y5P,TP,5.	1	S.A	
C508	2201-000723	C-CERAMIC,DISC	4.7NF,20%,3KV,Y5U,TP,16X5	1	S.A	
C509	2201-002147	C-CERAMIC,DISC	2.7NF,10%,500V,Y5P,TP,10X	1	S.A	
C510	2201-002147	C-CERAMIC,DISC	2.7NF,10%,500V,Y5P,TP,10X	1	S.A	
C144	2202-000127	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,25V,Y5V	1	S.A	
CV113	2202-000127	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,25V,Y5V	1	S.A	
CV114	2202-000127	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,25V,Y5V	1	S.A	
C143	2202-000222	C-CERAMIC,MLC-AXIAL	3.3nF,20%,16V,Y5P,TP	1	S.A	
C607	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C608	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
C627	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C629	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C638	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C642	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C643	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C644	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.A	
C701	2202-000243	C-CERAMIC,MLC-AXIAL	33pF,5%,50V,SL,TP,3.	1	S.A	
C702	2202-000243	C-CERAMIC,MLC-AXIAL	33pF,5%,50V,SL,TP,3.	1	S.A	
C703	2202-000243	C-CERAMIC,MLC-AXIAL	33pF,5%,50V,SL,TP,3.	1	S.A	
C704	2202-000243	C-CERAMIC,MLC-AXIAL	33pF,5%,50V,SL,TP,3.	1	S.A	
C705	2202-000243	C-CERAMIC,MLC-AXIAL	33pF,5%,50V,SL,TP,3.	1	S.A	
C312	2202-000796	C-CERAMIC,MLC-AXIAL	1NF,10%,50V,Y5P,TP,3	1	S.A	
C313	2202-000796	C-CERAMIC,MLC-AXIAL	1NF,10%,50V,Y5P,TP,3	1	S.A	
C417	2202-000796	C-CERAMIC,MLC-AXIAL	1NF,10%,50V,Y5P,TP,3	1	S.A	
C902	2202-000796	C-CERAMIC,MLC-AXIAL	1NF,10%,50V,Y5P,TP,3	1	S.A	
C147	2202-000807	C-CERAMIC,MLC-AXIAL	22nF,+80-20%,25V,Y5V	1	S.A	
C505	2202-000825	C-CERAMIC,MLC-AXIAL	680pF,10%,50V,Y5P,TP	1	S.A	
C101	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C103	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C106	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C110	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C125	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C204	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C205	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C219	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C723	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C724	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C725	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C904	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C907	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C909	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C911	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C913	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C914	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C916	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C917	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C920	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C924	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C926	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C931	2202-002037	C-CERAMIC,MLC-AXIAL	100nF,80-20%,50V,Y5V	1	S.A	
C809	2301-000111	C-FILM,LEAD-PEF	1.8nF,5%,50V,TP,6.5x3.0x	1	S.A	
C843	2301-000192	C-FILM,LEAD-PEF	1nF,5%,50V,TP,5.3x10mm,5	1	S.A	
C610	2301-000289	C-FILM,LEAD-PEF	5.6nF,5%,50V,TP,7x6x3mm,	1	S.A	
C611	2301-000289	C-FILM,LEAD-PEF	5.6nF,5%,50V,TP,7x6x3mm,	1	S.A	
C929	2301-000301	C-FILM,LEAD-PEF	6.8nF,5%,50V,TP,6.5X5.5X	1	S.A	
C301	2301-000342	C-FILM,LEAD-PEF	2.2nF,5%,50V,TP,7.4x3.9x	1	S.A	
C844	2301-000356	C-FILM,LEAD-PEF	47nF,5%,50V,TP,7.5x4.0x6	1	S.A	
C401	2301-000383	C-FILM,LEAD-PEF	10nF,5%,50V,TP,6x7x3.2mm	1	S.A	
C801	2301-000383	C-FILM,LEAD-PEF	10nF,5%,50V,TP,6x7x3.2mm	1	S.A	
C810	2301-000383	C-FILM,LEAD-PEF	10nF,5%,50V,TP,6x7x3.2mm	1	S.A	
C928	2301-000383	C-FILM,LEAD-PEF	10nF,5%,50V,TP,6x7x3.2mm	1	S.A	
C414	2301-001083	C-FILM,LEAD-PPF	27nF,5%,400V,TP,20x7.5x1	1	S.A	
C504	2301-001259	C-FILM,LEAD-PPF	100nF,5%,400V,TP,19x8x16	1	S.A	
C807	2301-001342	C-FILM,LEAD-PPF	1.5nF,5%,800V,TP,15x6.5x	1	S.A	
C498	2305-000237	C-FILM,LEAD-PEF	1uF,5%,63V,TP,7.5x15.5mm	1	S.A	
C305	2305-000285	C-FILM,LEAD-PEF	220NF,5%,100V,TP,10.5X5.	1	S.A	
C148	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C713	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C715	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C717	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C719	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C824	2305-000289	C-FILM,LEAD-PEF	220nF,5%,63V,TP,-,5mm	1	S.A	
C404	2305-000382	C-FILM,LEAD-PEF	4.7nF,5%,400V,TP,-,5mm	1	S.A	
C130	2305-000412	C-FILM,LEAD-PEF	470nF,5%,63V,TP,-,5mm	1	S.A	
C131	2305-000412	C-FILM,LEAD-PEF	470nF,5%,63V,TP,-,5mm	1	S.A	
C132	2305-000412	C-FILM,LEAD-PEF	470nF,5%,63V,TP,-,5mm	1	S.A	
C830	2305-000412	C-FILM,LEAD-PEF	470nF,5%,63V,TP,-,5mm	1	S.A	
C133	2305-000665	C-FILM,LEAD-PEF	100nF,5%,63V,TP,7.5x4.0x	1	S.A	
C140	2305-000665	C-FILM,LEAD-PEF	100nF,5%,63V,TP,7.5x4.0x	1	S.A	
C419	2305-000665	C-FILM,LEAD-PEF	100nF,5%,63V,TP,7.5x4.0x	1	S.A	
C620	2305-000665	C-FILM,LEAD-PEF	100nF,5%,63V,TP,7.5x4.0x	1	S.A	
C145	2306-000134	C-FILM,LEAD-PPF	150nF,5%,400V,TP,19x17x1	1	S.A	
C206	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	1	S.A	
C218	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	1	S.A	
C906	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	1	S.A	
C925	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	1	S.A	
C821	2401-000262	C-AL	100uF,20%,160V,HR,TP,16x25,7.5	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
C822	2401-000262	C-AL	100uF,20%,160V,HR,TP,16x25,7.5	1	S.A	
C104	2401-000302	C-AL	100uF,20%,25V,GP,TP,6.3x11,5	1	S.A	
C402	2401-000302	C-AL	100uF,20%,25V,GP,TP,6.3x11,5	1	S.A	
C826	2401-000302	C-AL	100uF,20%,25V,GP,TP,6.3x11,5	1	S.A	
C304	2401-000365	C-AL	100uF,20%,50V,WT,TP,10x12.5mm,	1	S.A	
C506	2401-000430	C-AL	10uF,20%,250V,GP,TP,10x16mm,5m	1	S.A	
C507	2401-000430	C-AL	10uF,20%,250V,GP,TP,10x16mm,5m	1	S.A	
C105	2401-000480	C-AL	10uF,20%,50V,GP,TP,5x11,5	1	S.A	
C146	2401-000480	C-AL	10uF,20%,50V,GP,TP,5x11,5	1	S.A	
C511	2401-000553	C-AL	1uF,10%,50V,GP,TP,5x11,5	1	S.A	
C930	2401-000553	C-AL	1uF,10%,50V,GP,TP,5x11,5	1	S.A	
C137	2401-000660	C-AL	2.2uF,20%,50V,GP,TP,5x11,5	1	S.A	
C139	2401-000660	C-AL	2.2uF,20%,50V,GP,TP,5x11,5	1	S.A	
C721	2401-000660	C-AL	2.2uF,20%,50V,GP,TP,5x11,5	1	S.A	
C722	2401-000660	C-AL	2.2uF,20%,50V,GP,TP,5x11,5	1	S.A	
C846	2401-000698	C-AL	2200uF,20%,16V,WT,TP,12.5x25,5	1	S.A	
C817	2401-000703	C-AL	2200uF,20%,25V,GP,-,12.5x25mm,	1	S.A	
C409	2401-001397	C-AL	470uF,20%,25V,GP,TP,10x16,5	1	S.A	
C412	2401-001527	C-AL	47uF,20%,250V,HR,TP,13x25mm,5m	1	S.A	
C601	2401-001914	C-AL	1uF,20%,50V,BP,TP,5x11,5	1	S.A	
C602	2401-001914	C-AL	1uF,20%,50V,BP,TP,5x11,5	1	S.A	
C612	2401-001914	C-AL	1uF,20%,50V,BP,TP,5x11,5	1	S.A	
C613	2401-001914	C-AL	1uF,20%,50V,BP,TP,5x11,5	1	S.A	
C812	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	1	S.A	
C901	2401-002144	C-AL	47uF,20%,16V,GP,TP,5x11,5	1	S.A	
C407	2401-002268	C-AL	2.2uF,20%,250V,LZ,TP,8X11,5	1	S.A	
C410	2401-002288	C-AL	470uF,20%,25V,WT,TP,10x20,5	1	S.A	
C811	2401-002463	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	1	S.A	
C905	2401-002463	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	1	S.A	
C109	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C903	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C908	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C910	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C912	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C915	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C918	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C919	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C922	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C927	2401-003036	C-AL	100uF,20%,16V,GP,TP,5X11mm,5mm	1	S.A	
C808	2401-003046	C-AL	47uF,20%,50V,WT,TP,6.3x11,2.5	1	S.A	
C621	2401-003139	C-AL	1000uF,20%,25V,WT,TP,10*20,5mm	1	S.A	
C819	2401-003141	C-AL	2200uF,20%,25V,WT,TP,13x25,5mm	1	S.A	
C815	2401-003224	C-AL	470uF,20%,16V,WT,TP,8X11.5,5mm	1	S.A	
C825	2401-003224	C-AL	470uF,20%,16V,WT,TP,8X11.5,5mm	1	S.A	
C202	2401-003517	C-AL	22uF,20%,50V,LZ,TP,5x11mm,5	1	S.A	
C102	2401-003578	C-AL	1000uF,20%,10V,GP,TP,8x20mm,5	1	S.A	
C921	2401-003578	C-AL	1000uF,20%,10V,GP,TP,8x20mm,5	1	S.A	
L102	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L103	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L201	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L204	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L902	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L903	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L906	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L907	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L908	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L909	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L910	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L911	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
L424	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L702	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L704	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L707	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L708	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L709	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L710	2701-000142	INDUCTOR-AXIAL	1UH,10%,2534	1	S.A	
L107	2701-000159	INDUCTOR-AXIAL	22UH,10%,4298	1	S.A	
L605	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L606	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L607	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L608	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L705	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L706	2701-000177	INDUCTOR-AXIAL	33UH,10%,2534	1	S.A	
L808	2701-001030	INDUCTOR-AXIAL	43UH,10%,4514	1	S.A	
L303B	2701-001040	INDUCTOR-AXIAL	10UH,10%,4514	1	S.A	
L503A	2702-001092	INDUCTOR-RADIAL	2.2uH,10%,4x6mm	1	S.A	
F101	2901-000297	FILTER-EMI ON BOARD	-,3A,-,-,3.5x5,TP,-	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
F101	2901-000297	FILTER-EMI ON BOARD	-,3A,-,-,3.5x5,TP,-	1	S.A	
F101	2901-000297	FILTER-EMI ON BOARD	-,3A,-,-,3.5x5,TP,-	1	S.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
L2514	3301-000287	BEAD-AXIAL	,3.5x1.0x6.0mm,3000mA,TP,,,50	1	S.N.A	
SW901	3404-001252	SWITCH-TACT	12VDC,50MA,130GF,7.5X7.1,1	1	S.A	
SW902	3404-001252	SWITCH-TACT	12VDC,50MA,130GF,7.5X7.1,1	1	S.A	
SW903	3404-001252	SWITCH-TACT	12VDC,50MA,130GF,7.5X7.1,1	1	S.A	
SW904	3404-001252	SWITCH-TACT	12VDC,50MA,130GF,7.5X7.1,1	1	S.A	
SW905	3404-001252	SWITCH-TACT	12VDC,50MA,130GF,7.5X7.1,1	1	S.A	
⚠ FD802S	3601-001163	FUSE-AXIAL LEAD	125V,7A,-,EPOXY,2.4X7.1M	1	S.A	
FD801A	3601-001228	FUSE-AXIAL LEAD	125V,10A,FAST-ACTING,EPO	1	S.A	
F801A	3602-000114	FUSE-HOLDER	-,-,30mohm	1	S.A	
F801B	3602-000114	FUSE-HOLDER	-,-,30mohm	1	S.A	
CN900	3711-002643	HEADER-BOARD TO CABLE	BOX,4P,1R,2.5mm,ST	1	S.A	
CN502	3711-002645	HEADER-BOARD TO CABLE	BOX,6P,1R,2.5mm,ST	1	S.A	
T0310	4715-000001	SURGE ABSORBER	1000V,+50-10%,-,-,-	1	S.A	
T0310	4715-000001	SURGE ABSORBER	1000V,+50-10%,-,-,-	1	S.A	
T0310	4715-000001	SURGE ABSORBER	1000V,+50-10%,-,-,-	1	S.A	
T0310	4715-000001	SURGE ABSORBER	1000V,+50-10%,-,-,-	1	S.A	
EL501	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL502	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL800	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL801	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL803	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL804	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL805	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL806	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL807	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL808	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EL809	6042-000001	EYELET	ID2.2,OD2.7,L3.1,NI+SN,BSP3-1/2H	1	S.N.A	
EY422	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY600	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY601	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY602	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY603	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY800	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY801	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY802	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY803	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY804	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY820	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY821	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY823	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY825	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY826	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY827	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY828	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY829	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY831	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY832	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY833	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY834	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY835	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY836	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY837	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY838	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY839	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY840	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY841	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY842	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY843	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY844	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY845	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY846	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY847	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY848	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY849	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY850	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY851	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY852	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY853	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
EY854	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY855	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY856	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY857	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY858	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY859	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY860	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY861	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY862	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY863	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY864	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY865	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY866	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY867	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY868	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY869	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY870	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY871	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY872	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY873	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY874	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY875	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY876	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY877	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY878	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY879	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY880	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY881	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY882	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY883	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY887	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY890	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY893	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY898	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY899	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY982	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
EY983	6042-000002	EYELET	ID1.5,OD2,L2.8,NI+SN,BSP3-1/2H	1	S.A	
CN909	AA37-00001A	CONNECTOR-FBT FIX PIN	JM-3500,CPTTV,0.36	1	S.A	
GT101	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT102	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT103	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT104	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT404	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT501	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT502	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT503	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT504	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT804	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT805	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT806	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
DZ242	0403-001318	DIODE-ZENER	MTZJ4.3B,4.17-4.43V,500mW,DO	1	S.A	
R825	2003-002129	R-METAL OXIDE(S)	3.9ohm,5%,2W,AF,TP,3.9x	1	S.A	
R826	2003-002129	R-METAL OXIDE(S)	3.9ohm,5%,2W,AF,TP,3.9x	1	S.A	
R828	2003-002129	R-METAL OXIDE(S)	3.9ohm,5%,2W,AF,TP,3.9x	1	S.A	
CN701	3711-002647	HEADER-BOARD TO CABLE	BOX,8P,1R,2.5mm,ST	1	S.A	
R431	2004-005059	R-METAL(S)	2.7KOHM,1%,1/2W,AA,TP,6.4X2.4	1	S.A	
T0077	AA41-01172B	PCB MAIN	CL29M21,FR-1,1,00,1.6,245X330,K	1	S.N.A	
IC601	BP96-00418B	ASSY HEAT SINK P	AA62-30182F,SCREW,TDA72	1	S.N.A	
CIS1	0205-001154	OIL-SILICON	G746,-,-	0.2	S.N.A	
M0081	6003-000335	SCREW-TAPTITE	RH,+,2S,M3,L8,ZPC(YEL),SWR	1	S.N.A	
T0607	AA61-01390A	BRACKET-IC	CT-29A20HR,SECC,T1.0	1	S.N.A	
T0066	AA62-30182F	HEAT SINK-ES	CS29M6,A6063S,T2.0,26.2,52.	1	S.N.A	
T0085	1201-002118	IC-AUDIO AMP	TDA7297SA,ZIP,15P,-,DUAL,32	1	S.A	
R813	2009-001011	R-METAL PLATE	0.18ohm,10%,5W,CL,TP,5x14x	1	S.A	
JA702	3722-001423	JACK-PIN	3P+S1P,NI,BLK,ANGLE	1	S.A	
⚠ CR406S	2306-000195	C-FILM,LEAD-PPF	360nF,5%,400V,BK,26x19x1	1	S.A	
⚠ CR402S	2306-000329	C-FILM,LEAD-PPF	7NF,3%,1.6KV,BK,28.5X18.	1	S.A	
T0296	AA27-00166A	COIL LINEARITY	20UH,20UH,YL-81 DR 14X15	1	S.A	
M0018	AA97-16124C	ASSY MICOM	T-RHMNSA-1022K16A,TDA12005PQ,	1	S.A	
T0119	AA09-00508A	IC MICOM	TDA12005PQ/N1FCO-MTP,CL21M21EQ2	1	S.A	
IC501	AA96-50311P	ASSY HEAT SINK P	AA62-30175D,TDA6108AJF,	1	S.N.A	
M0081	6003-000334	SCREW-TAPTITE	RH,+,2S,M3,L6,ZPC(YEL),SWR	1	S.N.A	
T0175	AA62-30175D	HEAT SINK-PS	-,SECC,T1.0,-,33X15X30 FT-2	1	S.N.A	
T0074	1201-002244	IC-VIDEO AMP	TDA6108AJF,DBS9MPF,9P,21.8x	1	S.A	
T801S	AA26-00228D	TRANS SWITCHING	42B135-**,CORE,80V~280V,	1	S.A	
T0245	0202-001522	SOLDER-WIRE FLUX	LFA3-107,-,D1.2,96.5Sn/	0.25	S.N.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
		ASSY P/MATERIAL				
M0113	AA92-05179A	ASSY P/MATERIAL	29K5	1	S.N.A	
T0172	AA69-02609A	BAND-PP	W18,CLEA,1G	6.8	S.N.A	
T0376	6902-000061	BAG AIR	LDPE,T0.2,L1000,W500,TRP,,,	0.068	S.N.A	
T0376	6902-000001	BAG AIR	LDPE,T0.2,L1800,W1000,TRP,,,LDPE	0.014	S.N.A	
T0524	6902-000007	BAG PE	HDPE/NITRON/HDPE,T0.015/T0.5/T0.0	1	S.N.A	
T0214	AA60-40006A	PIN-STAPLE	AUTO,33X17.8X2.4,H18,33X17.8X	6	S.N.A	
		ASSY ACCESSORY				
M0045	AA92-11353E	ASSY ACCESSORY	CL29M16MQ2XXAX,K16A	1	S.N.A	
T0524	6902-000009	BAG PE	HDPE,T0.03,L400,W240,TRP,8,2,PE M	1	S.N.A	
T0116	AA39-40001B	CABLE RCA	,3P,1500MM,RED/WHT/YEL,RCA,RCA	1	S.A	
T0074	AA59-00316B	REMOCON	TM75,ET,32,G6148A,NT,EX	1	S.A	
0	AA68-03242F	MANUAL FLYER-01,SAFETY GUIDE	All Model,S	1	S.N.A	
	BN68-00797A	MANUAL FLYER-02,WARRANT CARD	SAMEX BASIC	1	S.N.A	
	BP68-00515A	MANUAL FLYER-REGISTRATION CARD	PRC CARD,	1	S.N.A	
M0596	AA68-03671H	MANUAL USERS-00	comm,Samsung,English,S.A	1	S.N.A	
M0596	AA68-03671J	MANUAL USERS-00	comm,Samsung,Spanish,S.A	1	S.N.A	
		ASSY COVER REAR				
M0002	AA90-05206L	ASSY COVER REAR	CL29K5MQ2X/XAX	1	S.N.A	
T0069	AA60-00091J	SPACER-FELT	-,FELT,330X10,-,-,BLK,T0.5,-	3	S.N.A	
T0015	AA64-03417B	CABINET BACK	29K5,HIPS,HB,G4309	1	S.A	
T0066	AA64-03974H	INLAY-BACK	K16A,PS,SHEET,T0.3,BLK,RCA9P+	1	S.N.A	
T0522	AA65-30008A	CLAMPER CORE-CORD	-,PE,HB,-,BLK,-	1	S.N.A	
		ASSY COVER FRONT				
M0001	AA90-05400C	ASSY COVER FRONT	CL29K5MQ2X/XAX	1	S.N.A	
T0081	6002-000522	SCREW-TAPPING	TH,+,2,M4,L15,ZPC(BLK),SWR	2	S.N.A	
M0081	6003-001026	SCREW-TAPTITE	RH,+,B,M4,L15,ZPC(BLK),SWR	2	S.A	
M0081	6003-001268	SCREW-TAPTITE	TH,+,B,M4,L12,ZPC(YEL),SWR	2	S.N.A	
M0081	AA60-10002A	SCREW-TAPTITE	RH,+,-,-,M4,L12,ZPC(YEL),S	4	S.N.A	
T0081	AA60-10050T	SCREW-TAPPING	-,SWRCH18A,M4,L20,RH,+,2S,	7	S.N.A	
CRT+CF	AA60-10050V	BOLT-HEX	-,SWRCH18A,M6,L30,HH,+,WC,-,Z	4	S.N.A	
CCM1	AA61-01316A	BRACKET-CRATER	29 ALL,STS304,T0.5,,,,	2	S.N.A	
T0609	AA63-60004G	SPACER-GUM,CRT	-,NTR RUBBER,-,-,-,GRY,T3	2	S.N.A	
T0003	AA96-02142L	ASSY COVER P-FRONT	29K5,HIPS,HB,GR503,SV	1	S.A	
M0081	6003-001019	SCREW-TAPTITE	RH,+,-,B,M4,L12,ZPC(BLK),S	1	S.A	
M0081	6003-001019	SCREW-TAPTITE	RH,+,-,B,M4,L12,ZPC(BLK),S	1	S.A	
T0069	AA60-00091D	SPACER-FELT	-,FELT,200X10,-,-,BLK,T0.35,	2	S.A	
T0245	AA61-00711D	HOLDER-PCB	29U1,U2,HIPS VO,BK502(HB-PROP	1	S.A	
T0607	AA61-40113A	STOPPER-PCB	501H,HIPS,-,-,HB,NTR,-	1	S.A	
CIS7	AA61-60003J	SPRING ETC-CS	-,SUS304,-,-,OD6,N7,OD6,-,	1	S.N.A	
T0023	AA64-02629A	KNOB POWER	29K5,ABS HB,G3676,SVM-3012	1	S.A	
T0299	AA64-02632A	WINDOW-RMC LED	29K5,PC,CLR	1	S.A	
T0022	AA64-02635A	KNOB CONTROL	29K5,ABS HB,G3676,SVM-3012	1	S.A	
T0003	AA64-03418G	CABINET FRONT	29K5,HIPS,HB,GR503,SV012P,	1	S.N.A	
T0578	AA64-04297F	INLAY AV	29M16,PS,T0.5,G/R,K16A	1	S.N.A	
T0057	AA64-70117B	BADGE-BRAND	,AL,T1.5,10.6,L65,BLK,SILVER	1	S.A	
CIS1	AA65-00011B	CLAMPER CORE-WIRE	ALL MODEL,NYLON 66,V2,	1	S.N.A	
CIS1	AA65-00011C	CLAMPER CORE-WIRE	ALL MODEL,NYLON 66,V2,	1	S.N.A	
T0382	BP61-00509C	HOLDER-CARE	PJT,ACRYL-FOAM,T0.25,W20.0mm	0.28	S.N.A	
T0175	AA96-03683A	ASSY SPEAKER P	8ohm,10W,700/500,Tinydome	1	S.A	
T0382	BP61-00495C	HOLDER-CARE	PJT,ACRYL-FOAM,T0.25,W30.0mm	0.2	S.N.A	
		ASSY FIXING				
T0892	AA91-08458G	ASSY FIXING	EP2(H/C300MM),KS7A,GOLDRUSH	1	S.N.A	
T0245	AA39-20010B	LEAD CONNECTOR-ASSY	,1P,500,YFH800-01,S,	1	S.A	
T0245	AA39-20010D	LEAD CONNECTOR-ASSY	,1P,400,YFH800-01,S,	1	S.A	
T0016	AA65-30009A	CLAMPER CORE-FBT	-,ABS,V0,-,BLK,-	1	S.N.A	
CIS1	AA65-30018A	CLAMPER CORE-WIRE	DONG-A,NYLON-66,-,-,-,	1	S.N.A	
CIS1	AA65-30104C	CLAMPER CORE-WIRE	ALL MODEL,NYLON 66,V2,	1	S.N.A	
⚠ T0066	AA96-20112A	ASSY POWER CORD	-,EP2/NO,H/C300,KJ10,THA	1	S.A	
	3811-001609	WIRE-PVC CU	BCWA,300V,ROLL,-,#22,BLK	0.15	S.N.A	

Loc.No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
T0268	AA39-10006K	CBF-POWER CORD	-,KJ-10,SPT-2 2/18AWG,240	1	S.A	
T0010	AA61-20284A	HOLDER	P-CORD,PP,-,-,-,BLK,VO,KE-002	1	S.N.A	

ASSY CPT

T0521	AA91-09087M	ASSY CPT	29 INCH,A68QFN793X001,+380MG,SD	1	S.N.A	
⚠ T0063	AA03-00420A	CRT COLOR	A68QFN793X001,+380,1.09,20.0,1	1	S.A	
T0089	AA27-00348A	COIL DEGAUSSING	29,CPTTV,8.5mH,60T,4.5O	1	S.A	
T0527	AA61-01373A	HOLDER-D COIL	29K5,NYLON 66	4	S.N.A	
T0064	AA65-00047A	CLAMPER CORE	D-Coil Clamp,NYLON 6/6,V0,	4	S.N.A	
T0603	AA98-70010B	ASSY TBC WIRE P	KS3A/CW29A6VN,29,NTSC,2P	1	S.N.A	
T0090	AA27-00314A	COIL DEGAUSSING-TILT	TILT,CPTTV,33.5mH,2	1	S.A	

MEMO

6. Troubleshooting

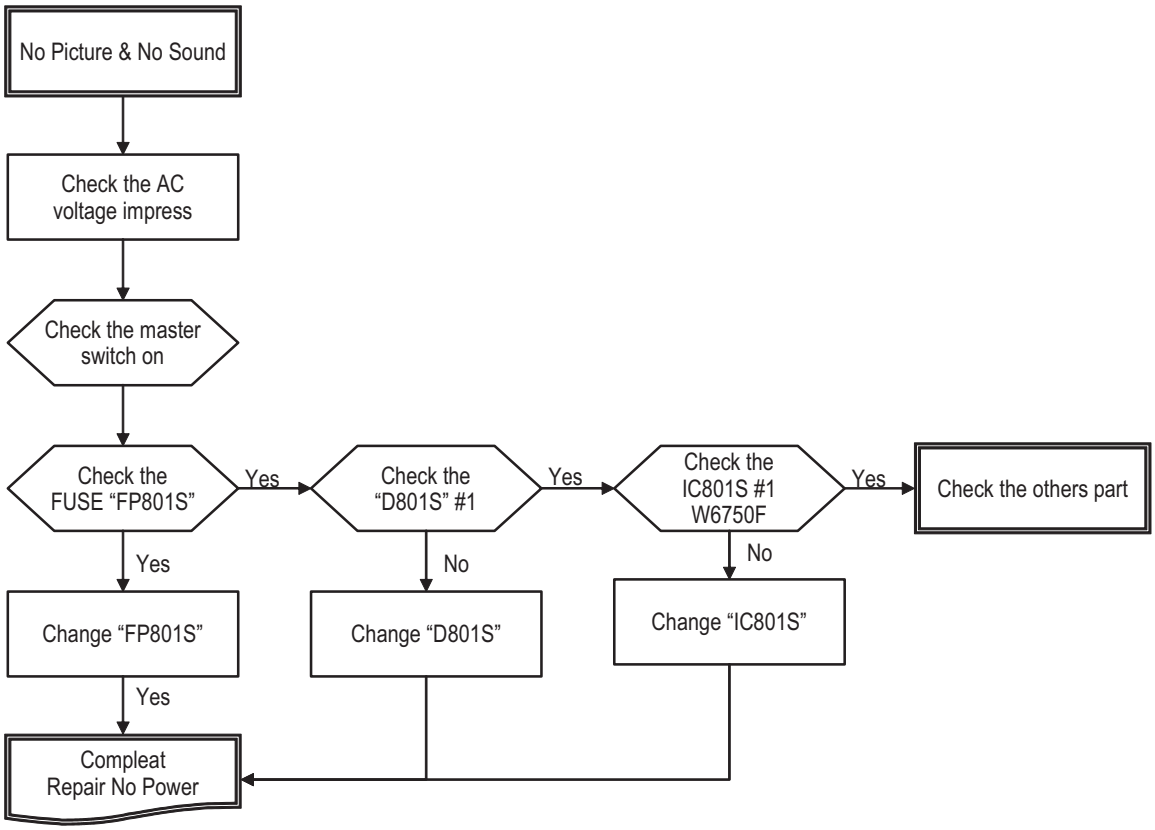
6-1 Checkpoints by Error Mode

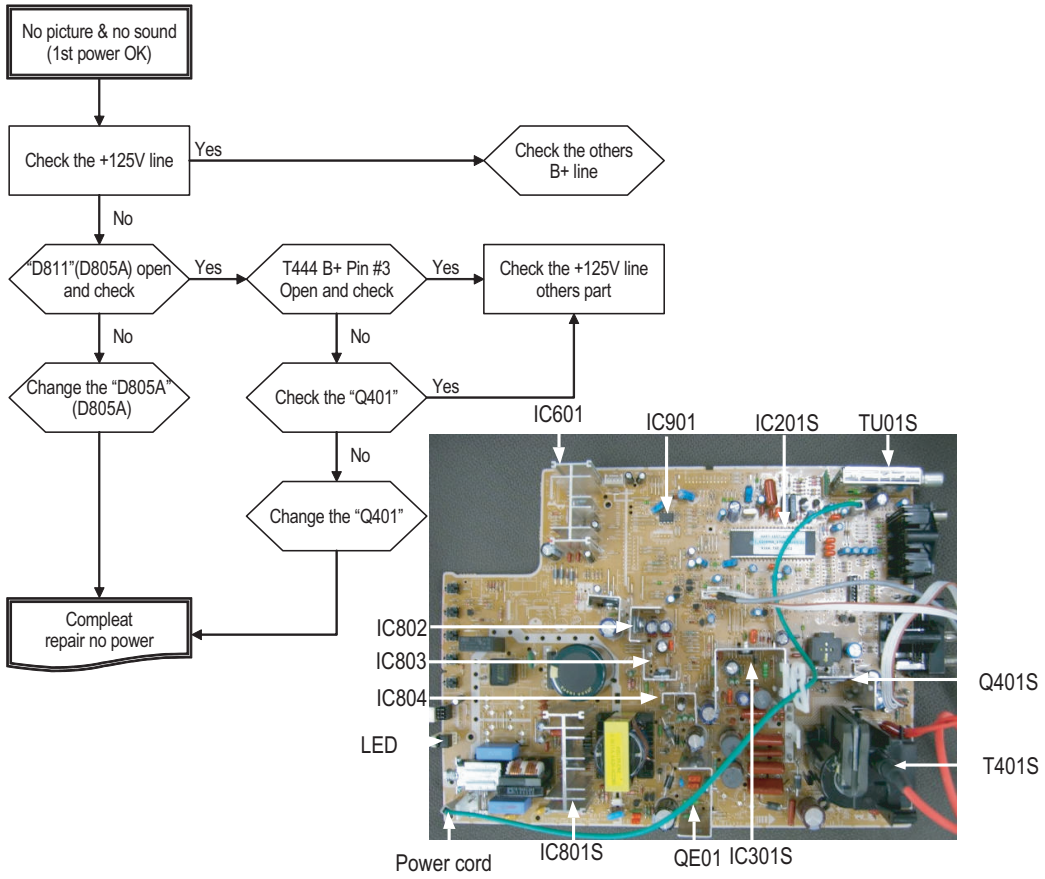
■ Power LED: Check that the LED works when turning the Master Switch ON/OFF

■ LED Indicators: See table 6-2-1 Basic Troubleshooting: LED Diagnosis on the Front Panel.

■ In case of a power failure or abnormal screen, check the following items.
1) Check that the power cord is correctly connected to a 230V wall outlet.
2) Check that the Master Switch has been pressed.
3) Check that the transmitter is turned on.
4) Check that transmitter device selection is set to TV.
5) Check that the signal cable is properly connected.
6) Check that channel setting has been set.

6-1-1 Flow Chart for Malfunction

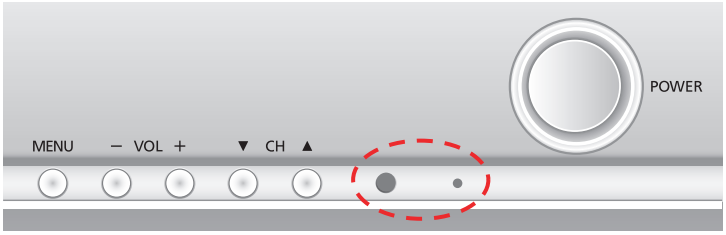




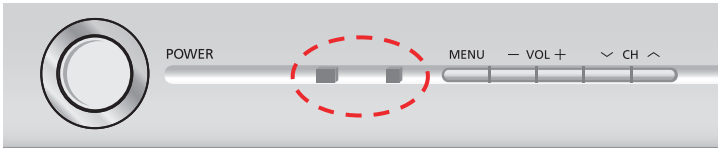
6-2 Troubleshooting Procedures by Error Modes

6-2-1 Basic Troubleshooting: Diagnosis of LED on the Front Panel

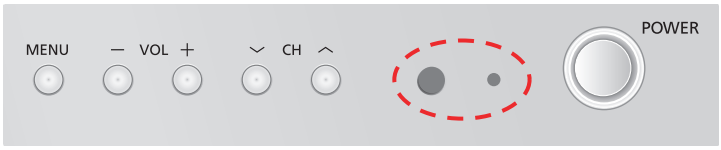
CL29M16



CL29M21



CL29T21



● : Light is On
◑ : Light is Blinking
○ : Light is Off

Power	Description
○	This happens when the Master Switch is not pressed or the power cord is disconnected.
●	This happens when the power cord is connected and the power switch is pressed. If you cannot set the power switch on by pressing it, check the power switch Ass'y.
○→◑→●	If you press the power switch of the transmitter or the channel key on the remote control when in St-BY status, the screen will be turned on. If the LED blinks and the screen is not displayed, check the connection between the Control Assy and the Main Board.

6-2-2 Troubleshooting by the Checksum

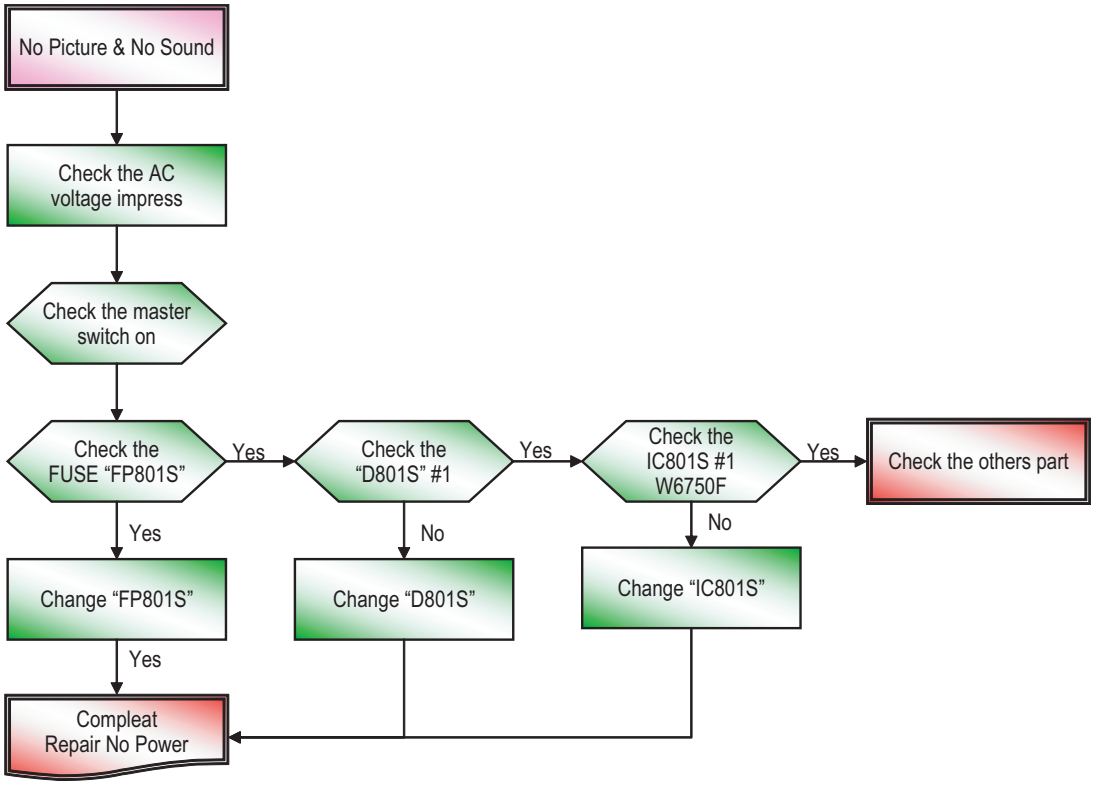
■ Diagnosis of trouble by the checksum is neither reliable nor convenient.
You can only use the checksume of the current direct-view TV to determine whether the software is corrupted or not.
The Checksum value is determined according to the version of the software loaded on the set.
Therefore, you can determine whether the software has been properly downloaded, if you know the correct checksum for that version of the software.

You can check the checksum according in the following order.
Factory Mode → Checksum → Right Button → Calculate Checksum → Output Checksum (e.g. 3036)

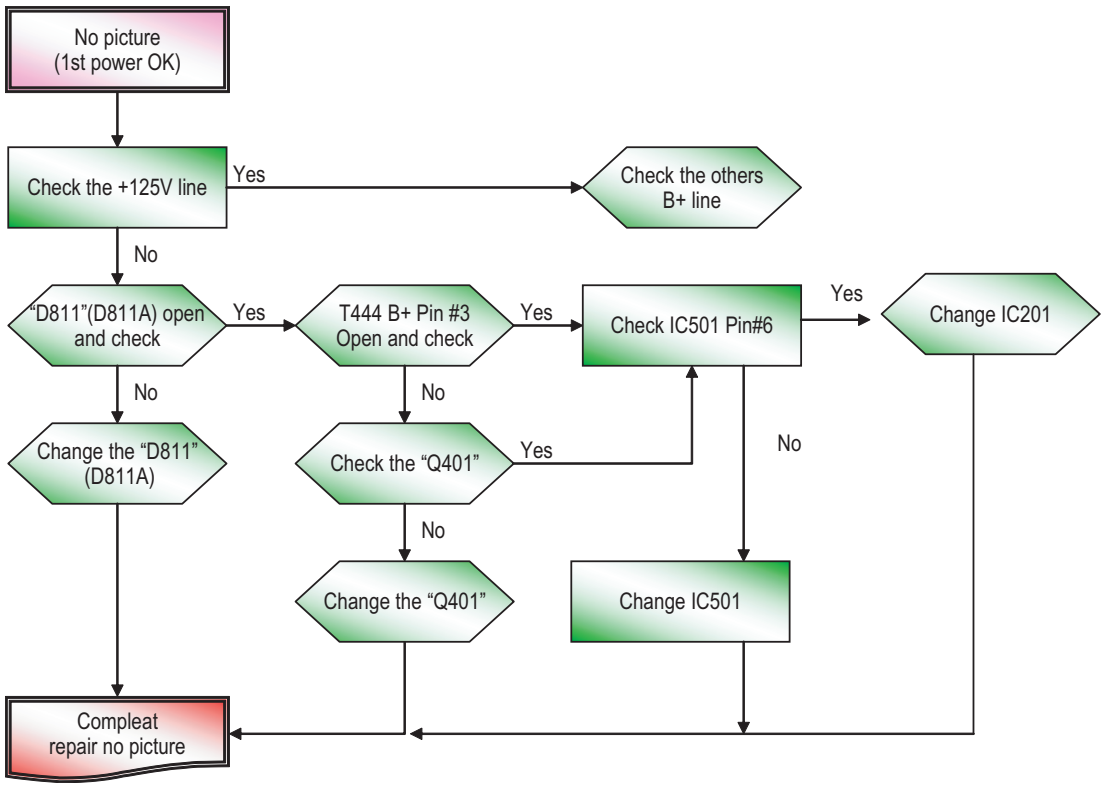
■ Checksum Examples
T-TR2PEU-1000 : checksum = 8036
T-TR2PEU-1010 : checksum = B612

6-3 Troubleshooting Procedures by ASS'Y

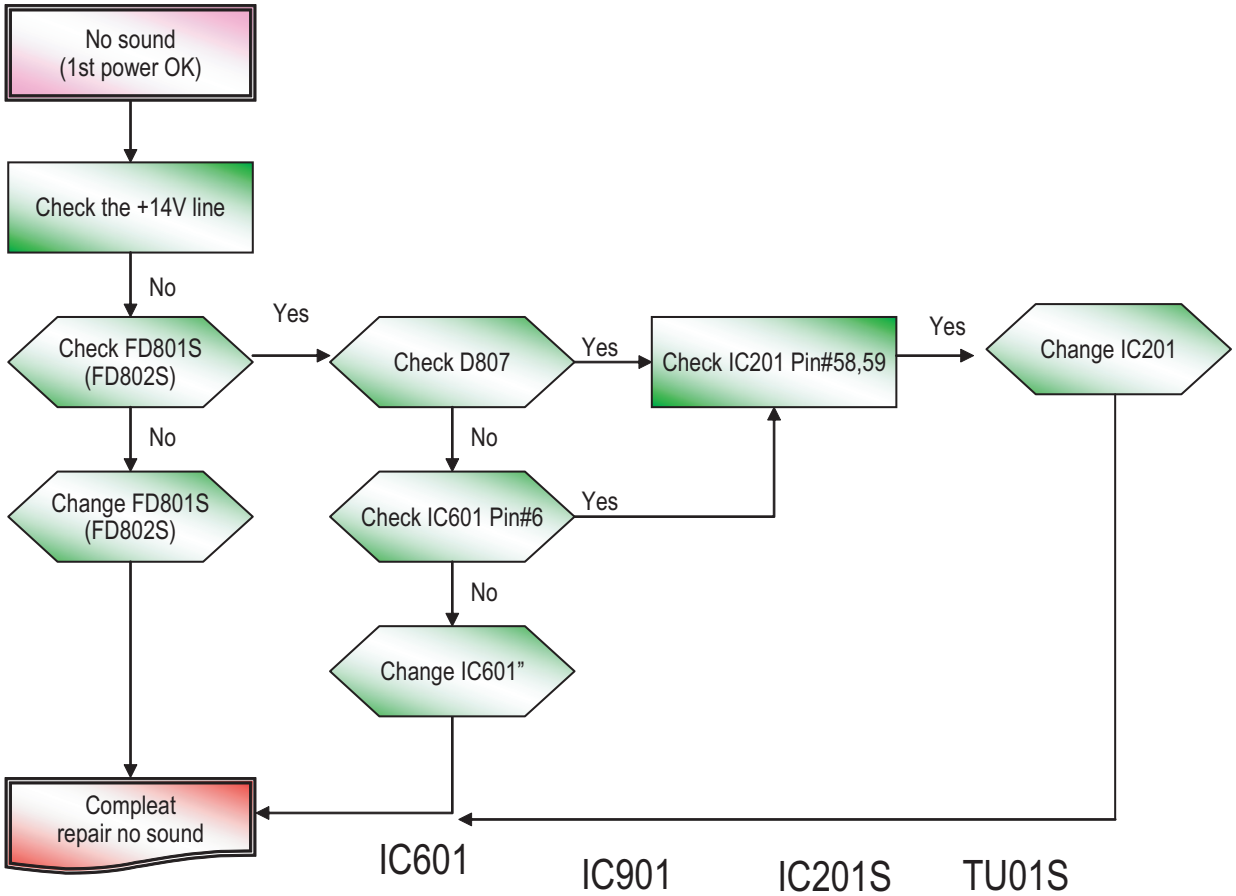
6-3-1 No Power (1st Power)

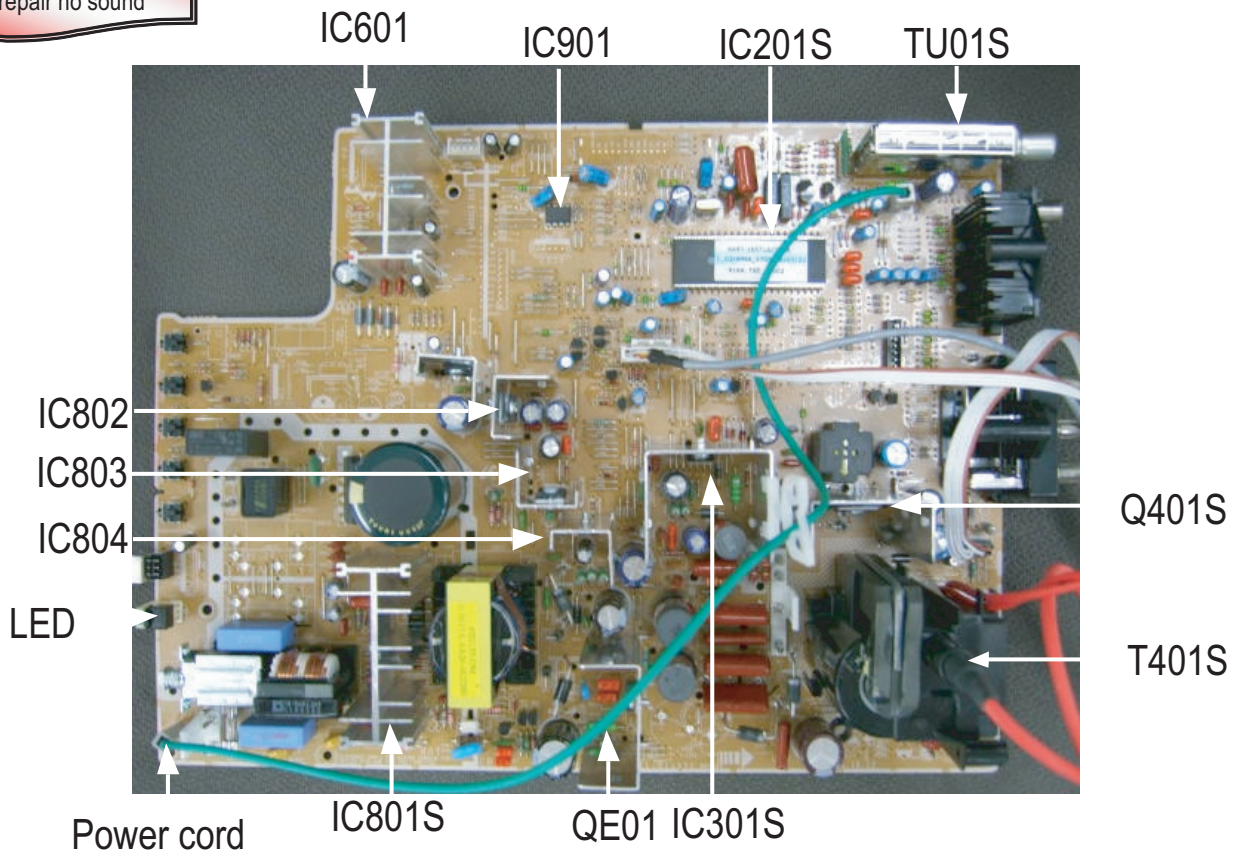


6-3-2 No Picture(2nd Power)



6-3-3 No Sound

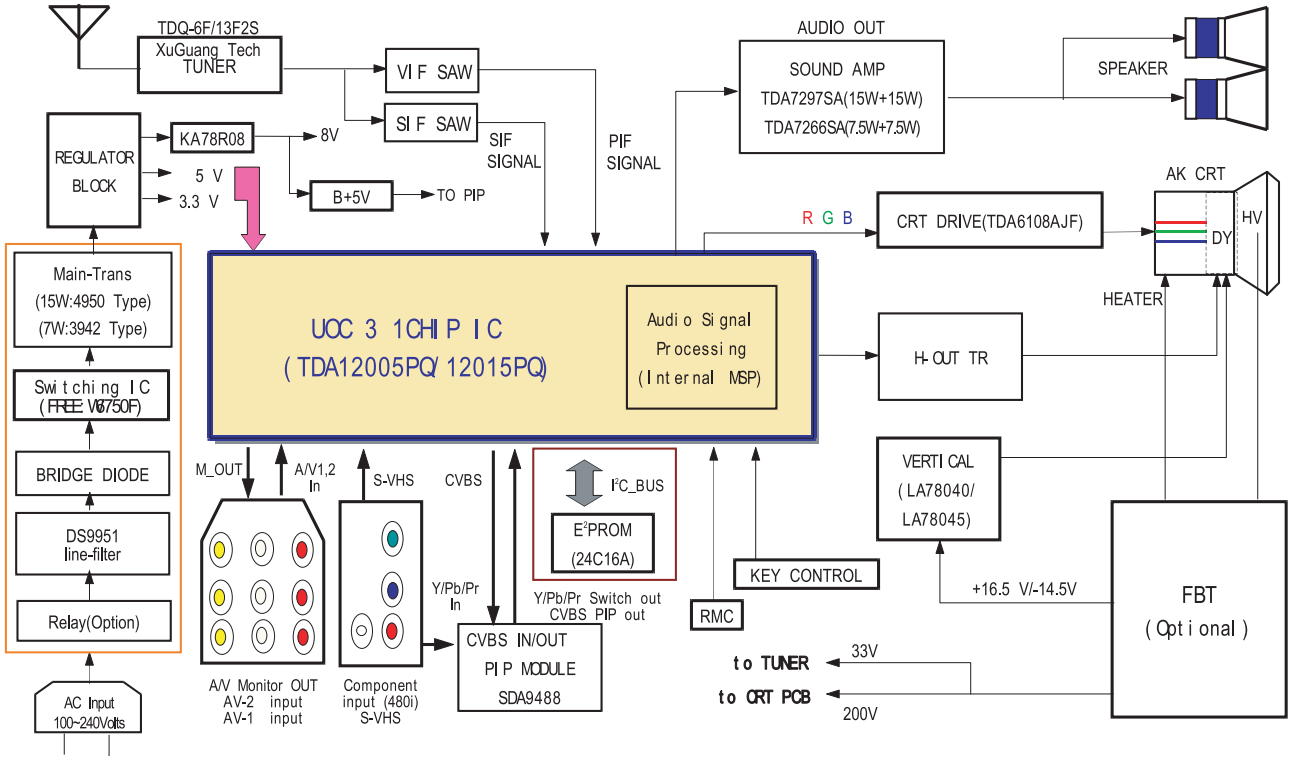

No sound
(1st power OK)
Check the +14V line
No
Check FD801S
(FD802S)
Yes
Check D807
Yes
Check IC201 Pin#58,59
Yes
Change IC201
No
Change FD801S
(FD802S)
No
Check IC601 Pin#6
Yes
No
Change IC601"
Compleat
repair no sound


IC601
IC901
IC201S
TU01S
IC802
IC803
IC804
LED
Q401S
T401S
Power cord
IC801S
QE01 IC301S

MEMO

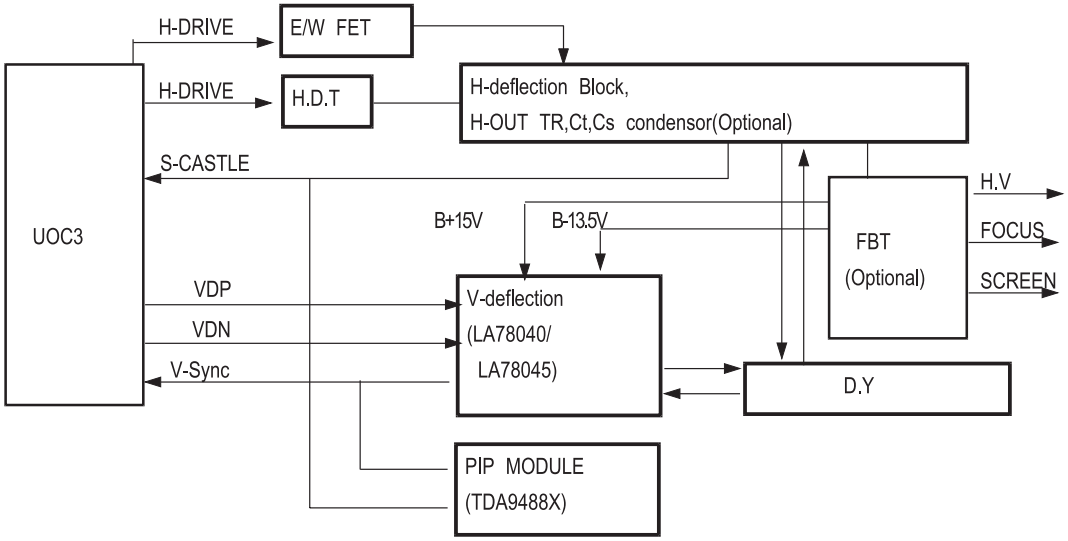
7. Block Diagram

7-1 Overall Block Diagram

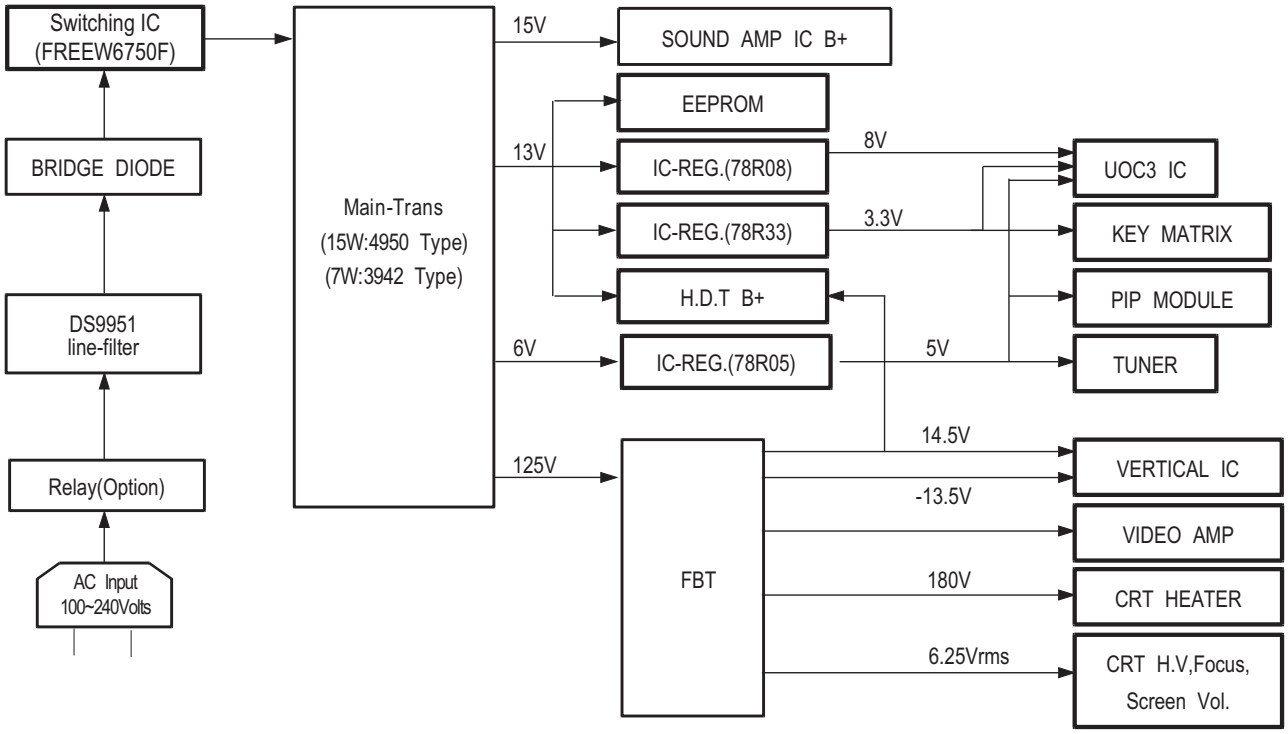


7-2 Partial Block Diagram

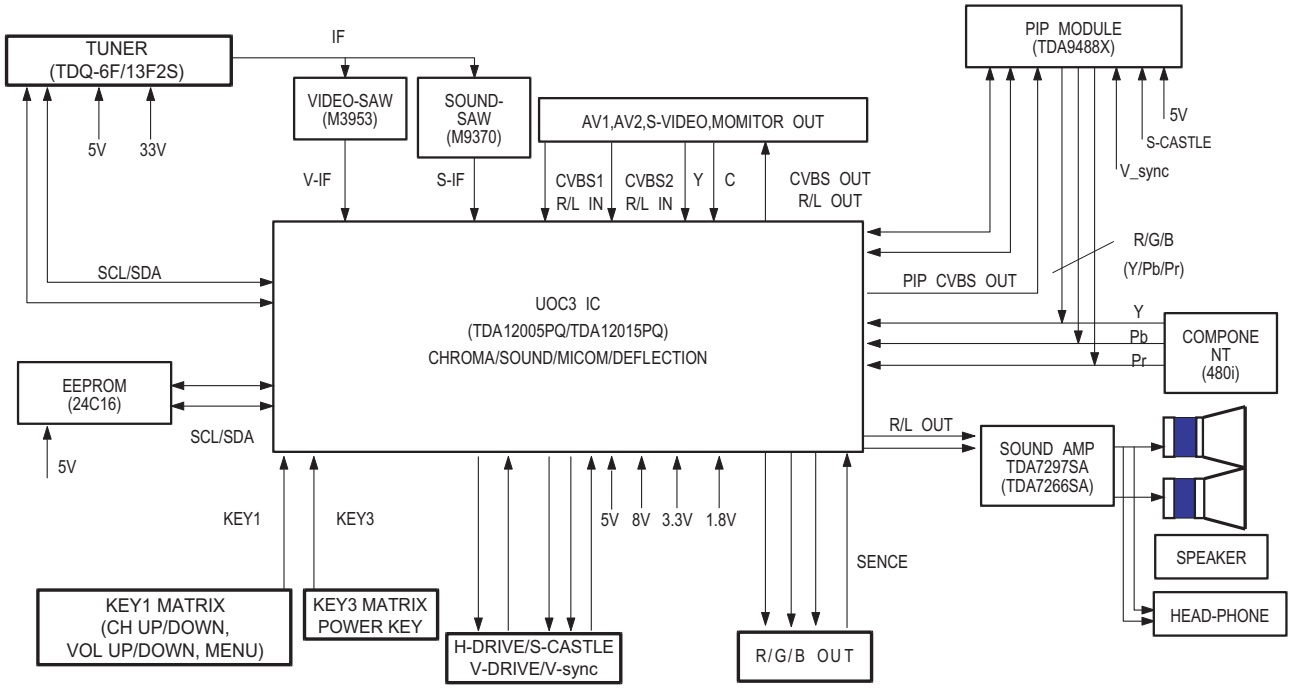
7-2-1 Deflection Block Diagram



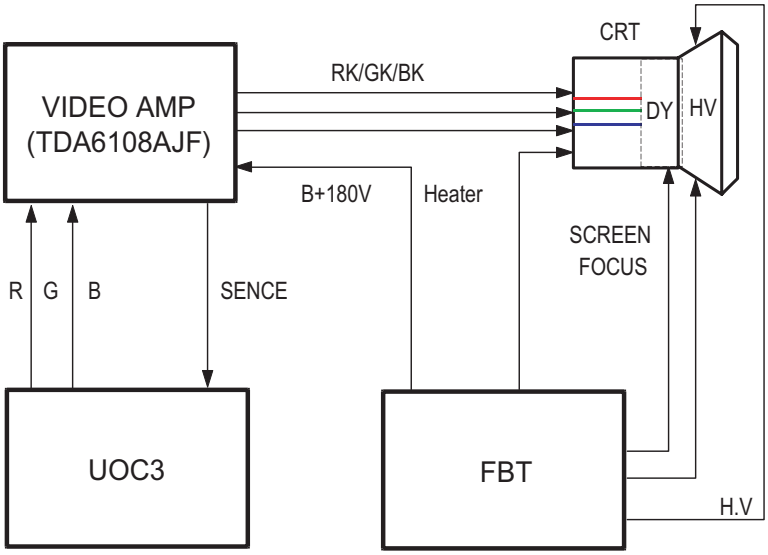
7-2-2 Power Block Diagram



7-2-2 Micom & Tuner Block Diagram



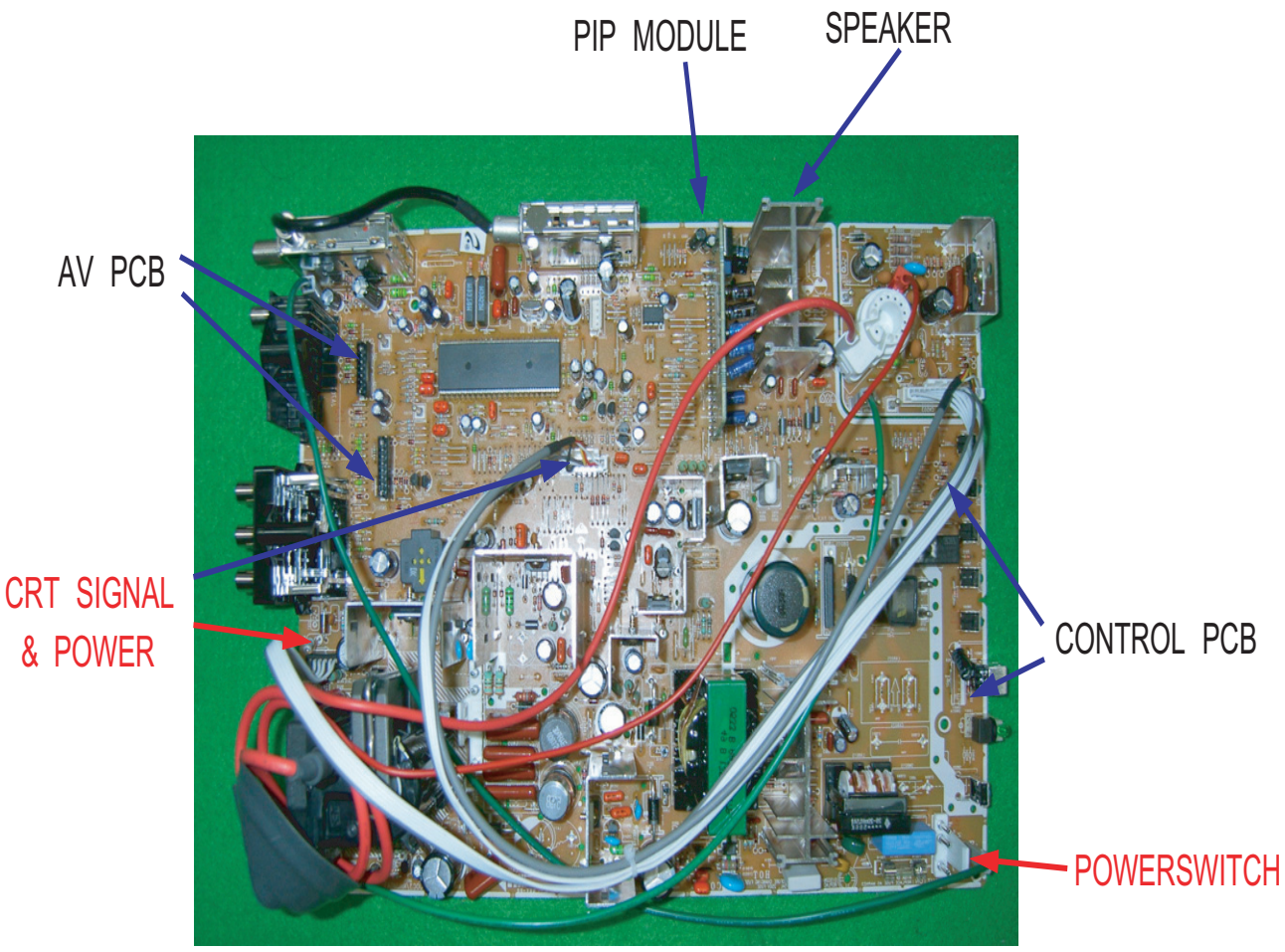
7-2-3 CRT Drive Block Diagram



MEMO

8. Wiring Diagram

8-1 Overall Wiring



8-2 Pin Connection

CN901	
Pin NO.	Pin Name
1	STD-LED
2	TIME-LED
3	GND
4	VCC
5	I.R

CN902	
Pin NO.	Pin Name
1	KEY-IN2
2	KEY-IN1
3	GND
4	KEY-IN3

CN503	
Pin NO.	Pin Name
1	B-OUT
2	G-OUT
3	R-OUT
4	GND
5	SENSE
6	GND
7	N.C
8	GND
9	GND
10	N.C
11	GND
12	HEATER
13	N.C
14	B+200V

CN601	
Pin NO.	Pin Name
1	R+OUT
2	R-OUT
3	L+OUT
4	L-OUT

FN01	
Pin NO.	Pin Name
1	TILT OUT
2	TILT OUT
3	GND
4	GND

CNP01	
Pin NO.	Pin Name
1	B+ 8V
2	B+ 5V
3	GND
4	SCL
5	SDA
6	GND
7	H- SYNC
8	V- SYNC
9	PIP- F/B
10	PIP- B
11	PIP- G
12	PIP- R

CNP02	
Pin NO.	Pin Name
1	OSD- R
2	OSD- G
3	OSD- B
4	OSD- F/B
5	SUb-CVBS
6	GND
7	PIP-CVBS
8	N.C

PIP MODULE

CNP01 CNP02

CN501A	
Pin NO.	Pin Name
1	GND
2	N.C
3	GND
4	HEATER
5	N.C
6	B+200V

CN900	
Pin NO.	Pin Name
1	SCL
2	GND
3	B+3.3V
4	SDA

TU02S

TU01S

CN502	
Pin NO.	Pin Name
1	B-OUT
2	G-OUT
3	R-OUT
4	GND
5	SENSE
6	GND
7	N.C
8	GND

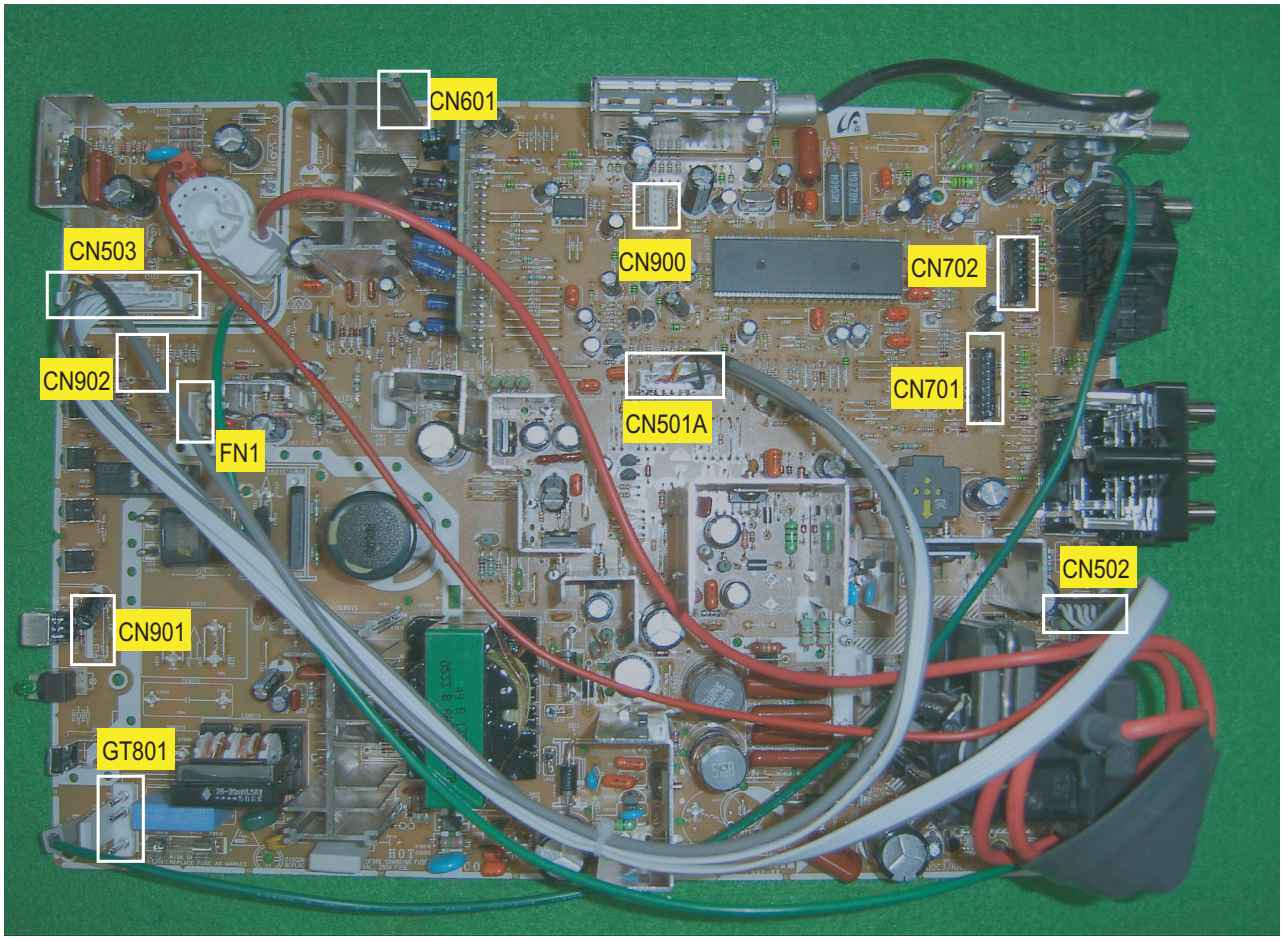
CN701	
Pin NO.	Pin Name
1	AV2-R-IN
2	AV2-L-IN
3	AV2-L-OUT
4	AV2-R-OUT
5	GND
6	AV2-V-IN
7	GND
8	AV2-V-OUT

CN702	
Pin NO.	Pin Name
1	C-OUT
2	GND
3	Y-OUT
4	GND
5	C-IN
6	GND
7	Y-IN

9. PCB Diagram

9-1 Main Board

9-1-1 Assy Main Board



■ The Board that Controls Various Signals & Power for Product Operations

9-1-2 Names & Roles of Key Parts

* GT801 : A3 pin port connected to the Master Ass'y, which handles Master Power On/Off.
* CN601 : A4 pin port connected to the Speaker.
* CN902 : A4 pin port connected to the Control Ass'y, which delivers the necessary signal to KEY-IN1, KEY-IN2 Control.
* CN901 : A5 pin port connected to the Control Ass'y, which delivers the necessary signal to the remote control and the Led control.
* CN602 : A5 pin port connected to AV Ass'y.
* CN701 : A8 pin port connected to the AV Ass'y, which receives AV2 external input.
* CN702 : A7 pin port connected to the AV Ass'y, which receives S-VHS external input.
* CN501 : A8 pin port connected to the CRT Ass'y which outputs the R/G/B signal to the CRT Ass'y for display. In addition, this port outputs the necessary TILT, VM, and Power signals to the CRT Drive.
* CN502 : A6 pin port connected to the CRT Ass'y. Through this port, the power from the Deflection Block is supplied to drive the CRT AMP.
* CN503 : A14 pin port connected to the CRT Ass'y.
* FN1 : A4 pin port connected to the Tilt Coil.

9-1-3 Main Board Connector Pin

CN503
Connected to the Main Ass'y

PIN No.	Pin Name
1	B-OUT
2	G-OUT
3	R-OUT
4	GND
5	SENSE
6	GND
7	N.C
8	GND
9	GND
10	N.C
11	GND
12	HEATER
13	N.C
14	B+200V

CN502
Connected to the CRT Ass'y

PIN No.	Pin Name
1	B-OUT
2	G-OUT
3	R-OUT
4	GND
5	SENSE
6	GND
7	N.C
8	GND

CN701
Connected to the AV Ass'y

PIN No.	Pin Name
1	AV2-R-IN
2	AV2-L-IN
3	AV2-L-OUT
4	AV2-R-OUT
5	GND
6	AV2-V-IN
7	GND
8	AV2-V-OUT

CN501A
Connected to the CRT Ass'y

PIN No.	Pin Name
1	GND
2	N.C
3	GND
4	HEATER
5	N.C
6	B+200V

CN901
Connected to the Control Ass'y

PIN No.	Pin Name
1	STD-LED
2	TIME-LED
3	GND
4	VCC

CN902
Connected to the Control Ass'y

PIN No.	Pin Name
1	KEY-IN2
2	KEY-IN1
3	GND
4	KEY-IN3

CN900
Connected to Micom Jig

PIN No.	Pin Name
1	SCL
2	GND
3	B+3.3V
4	SDA

CN702
Connected to the AV Ass'y

PIN No.	Pin Name
1	C-OUT
2	GND
3	Y-OUT
4	GND
5	C-IN
6	GND
7	Y-IN

CN601
Connected to the Speaker

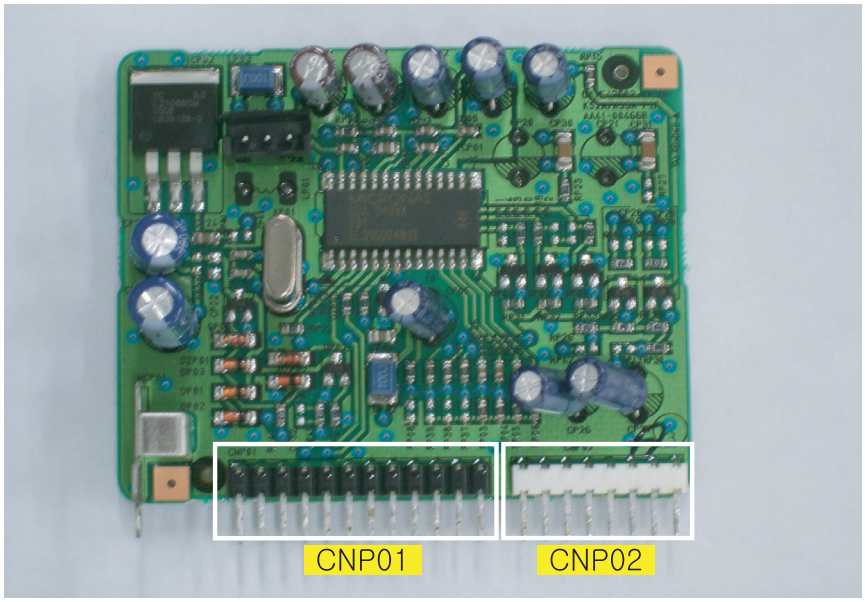
PIN No.	Pin Name
1	R+OUT
2	R-OUT
3	L+OUT
4	L-OUT

FN01
Connected to the Tilt Coil

PIN No.	Pin Name
1	TILT OUT
2	TILT OUT
3	GND
4	GND

9-2 PIP Module

9-2-1 Assy PIP Module



9-2-2 Names & Roles of Key Parts

* CNP01 : A 12pin port inserted into the Main Ass'y, which connects various signal control ports necessary for PIP signal processing and product operation.
* CNP02 : A 8pin port inserted into the Main Ass'y, which connects various signal control ports necessary for PIP signal processing and product operation.

9-2-3 PIP Module Connector Pin

CNP01
Connected to the Main Ass'y

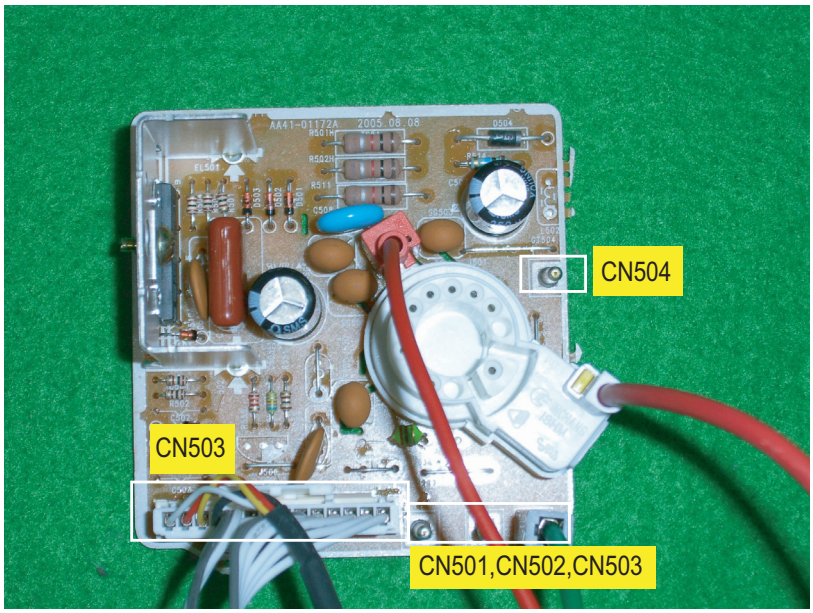
PIN No.	Pin NAME
1	B+8V
2	B+5V
3	GND
4	SCL
5	SDA
6	GND
7	H-SYNC
8	V-SYNC
9	PIP-F/B
10	PIP-B
11	PIP-G
12	PIP-R

CNP02
Connected to the Main Ass'y

PIN No.	Pin NAME
1	OSD-R
2	OSD-G
3	OSD-B
4	OSD-F/B
5	SUb-CVBS
6	GND
7	PIP-CVBS
8	C-IN

9-3 CRT Board

9-3-1 Assy CRT Board



■ Through this port, the power from the DEFLECTION BLOCK & the R/G/B output signal from the Micom Module are supplied to drive the CRT and AMP.

9-3-2 Names & Roles of Key Parts

* GT501, GT502, GT503 : The TBC-WIRE connection port. This port plays the role of the CRT Ground.
* CN503 : The R/G/B output signal from the Micom Module & the power, which is required to drive the CRT and the AMP, from the Deflection Block is connected to this port.

9-3-3 CRT Board Connector Pin

CN503
Connects the R/G/B signal from the Micom Module

PIN No.	Pin NAME
1	B-OUT
2	G-OUT
3	R-OUT
4	GND
5	SENSE
6	GND
7	N.C
8	GND
9	GND
10	N.C
11	GND
12	HEATER
13	N.C
14	B+200V

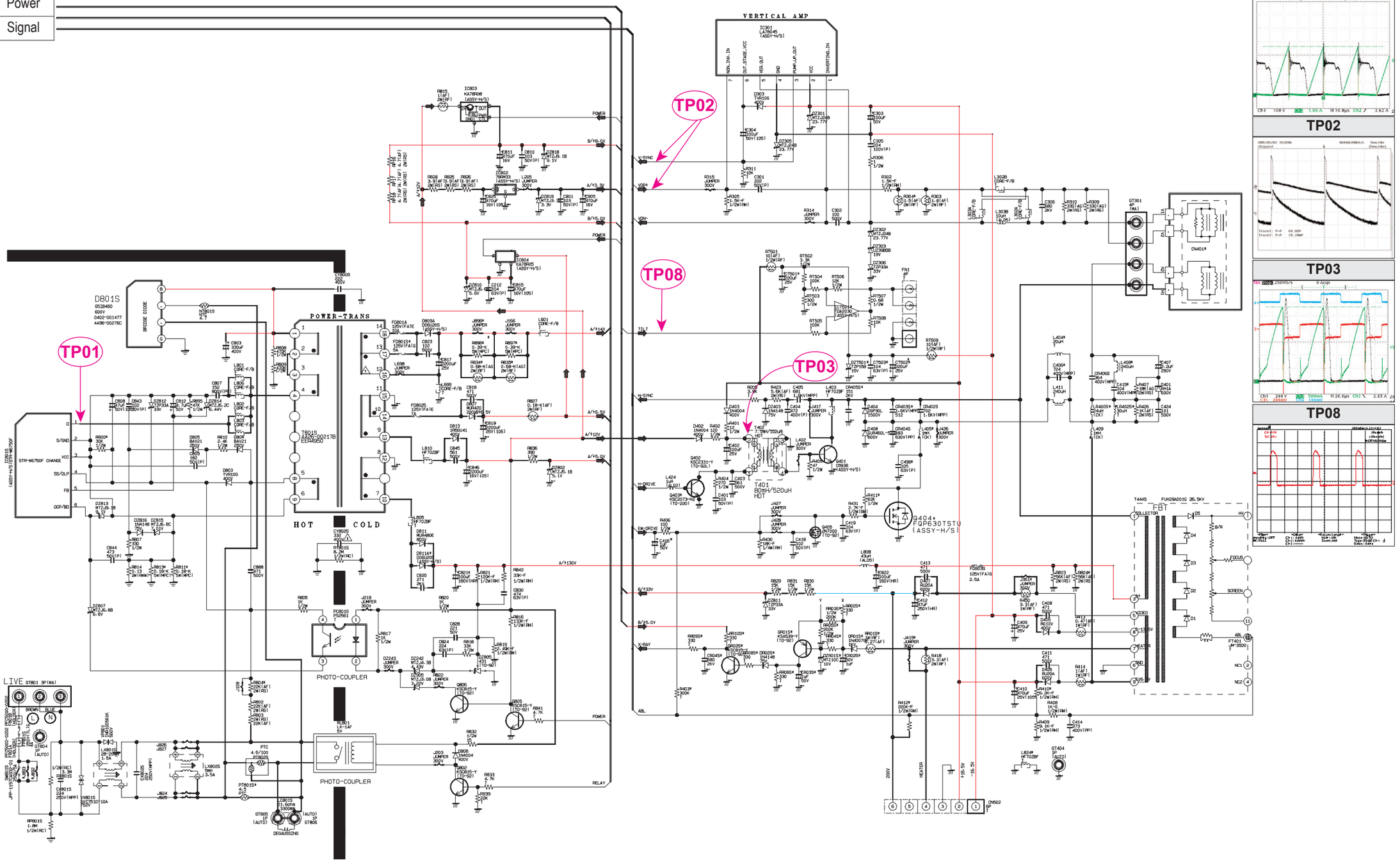
MEMO

10. Schematic Diagram

10-1 Power & Deflection Block

This Document can not be used without Samsung's authorization.

———	Power
———	Signal

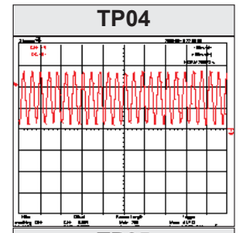


10-2 IF & UOC(Chroma_Micom) Block

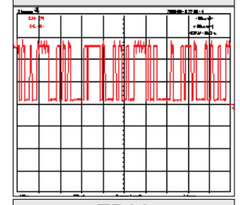
This Document can not be used without Samsung's authorization.

———	Power
———	Signal

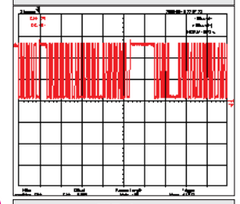
TP04



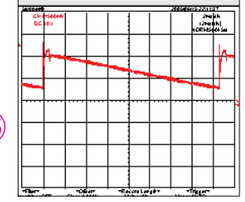
TP05



TP06



TP07

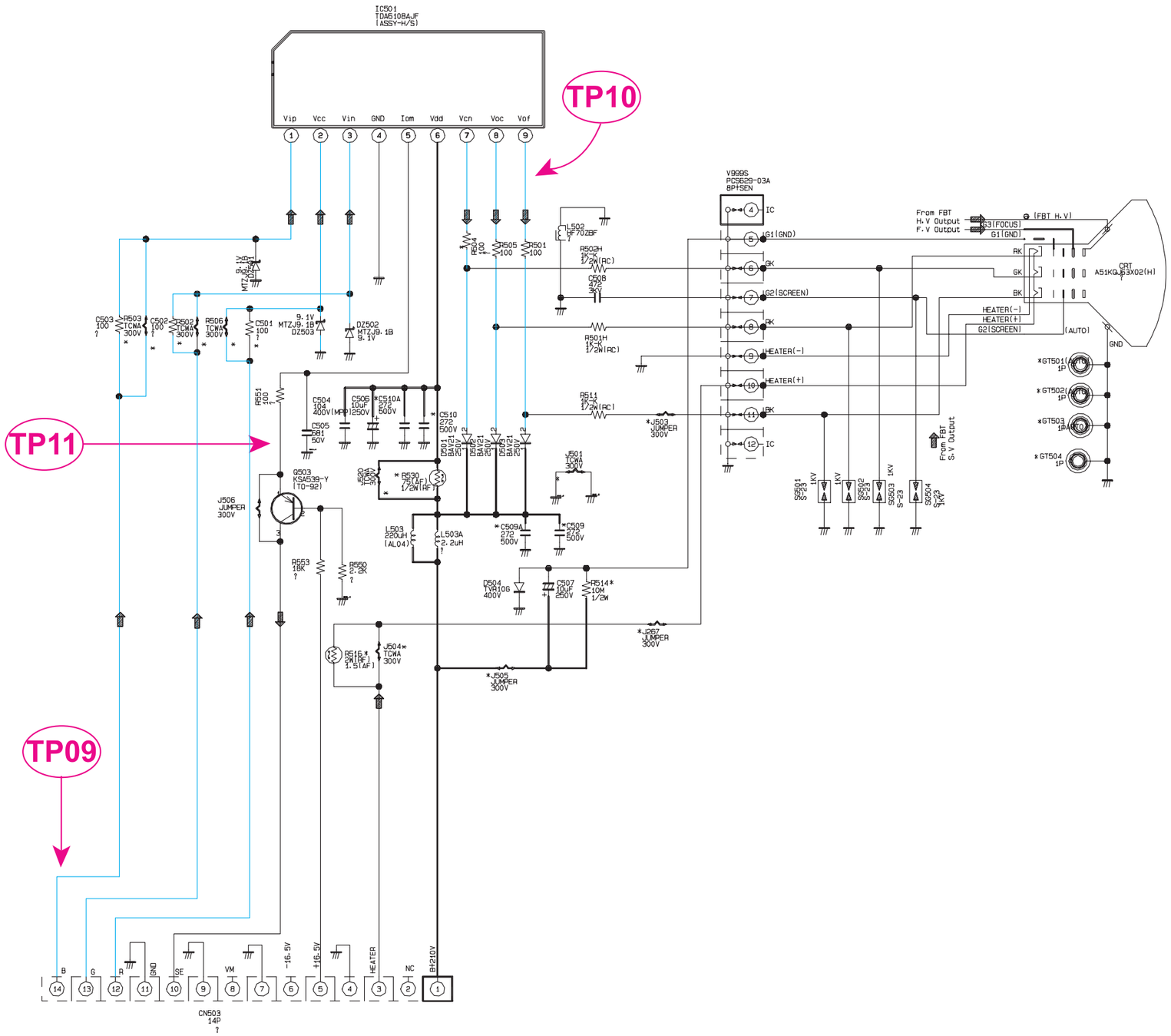


10-3 PIP & CRT Block

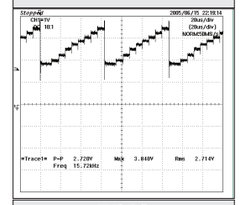
This Document can not be used without Samsung's authorization.

———	Power
———	Signal

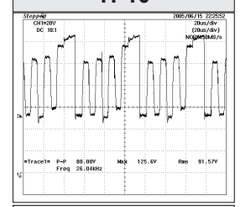
CRT (MAIN SUB CRT)



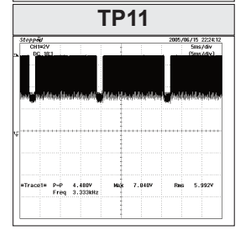
TP09



TP10

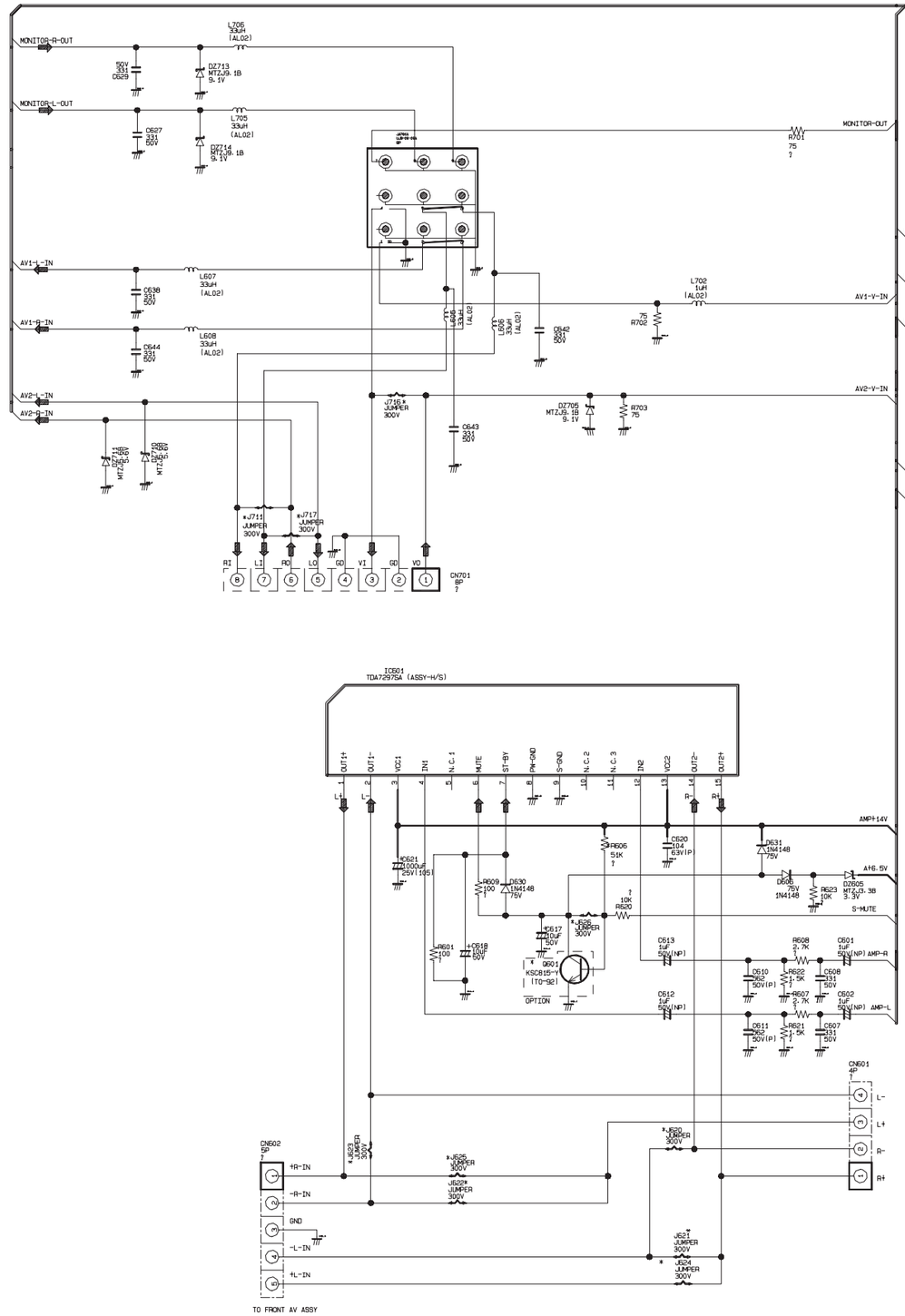


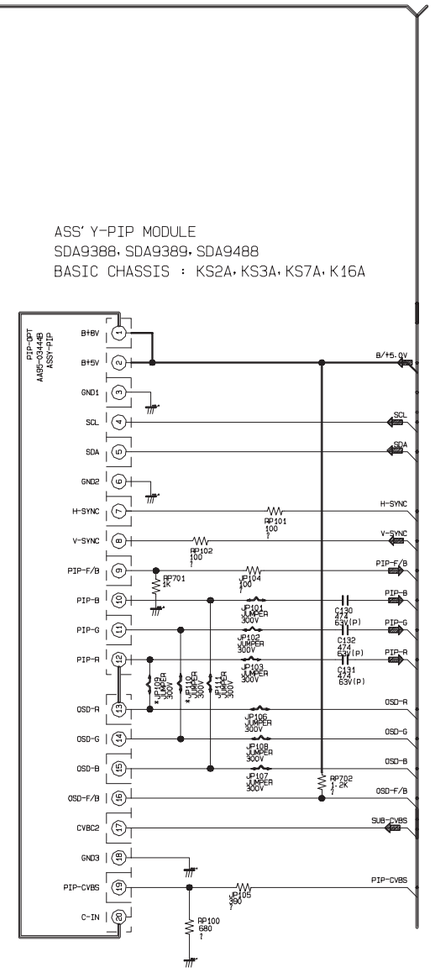
TP11



10-4 AV & Sound Block

This Document can not be used without Samsung's authorization.




ASS'Y-PIP MODULE
SDA9388, SDA9389, SDA9488
BASIC CHASSIS : KS2A, KS3A, KS7A, K16A
PIP-OPT AA85-03448 ASSY-PIP
B+8V B+5V GND1 SCL SDA GND2 H-SYNC V-SYNC PIP-F/B PIP-B PIP-G PIP-R OSD-R OSD-G OSD-B OSD-F/B CVBC2 GND3 PIP-CVBS C-IN
B/+5.0V SCL SDA H-SYNC V-SYNC PIP-F/B PIP-B PIP-G PIP-R OSD-R OSD-G OSD-B OSD-F/B SUB-CVBS PIP-CVBS
RP101 100 ?
RP102 100 ?
RP104 100 ?
RP701 1K ?
*JP101 JUMPER 300V
*JP102 JUMPER 300V
*JP103 JUMPER 300V
*JP106 JUMPER 300V
*JP108 JUMPER 300V
*JP107 JUMPER 300V
C130 474 63V(P)
C132 474 63V(P)
C131 474 63V(P)
RP702 1.2K ?
RP105 390 ?
RP100 680 ?

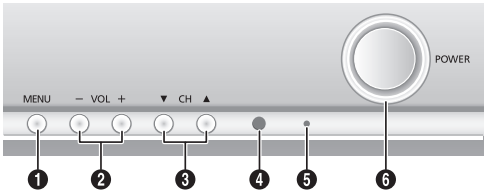
11. Operation Instruction & Installation

11-1 Product Features and Functions

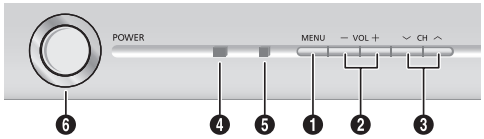
11-1-1 Control Buttons

You can control your TV's basic features, including the on-screen menu.
To use the more advanced features, you must use the remote control.

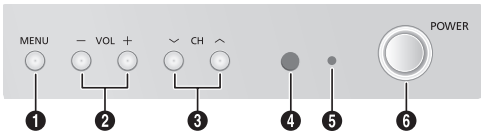
CL29M16



CL29M21



CL29T21



1 MENU
Press to see an on-screen menu of your TV's features.

2 – VOL +
Press to increase or decrease the volume. Also used to select items on the on-screen menu.

3 ∨(▼) CH ∧(▲)
Press to change channels. Also press to move between items on the on-screen menu.

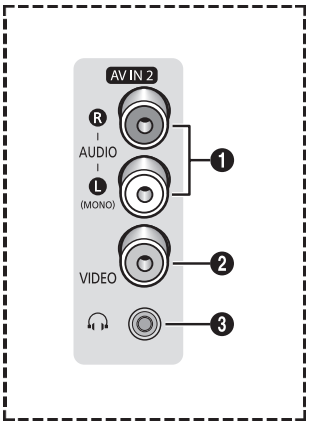
4 Remote Control Sensor
Aim the remote control towards this spot on the TV.

5 Indicator
(depending on the model)
- Stand-By ; Red
  Lights up when you turn the power off.
  - Power Off ; Red
  - Power On ; Off
- TIMER ; Green
  When the TV is turned on, the TIMER indicator blinks five times. This indicator illuminates when the TIMER mode is set to the "On" position after setting the clock and either the On timer or Off timer, with the remote control. Even if the power is turned off, this indicator stays lit. (Clock must be set before using this function.)

6 POWER
Press to turn the TV on and off.

11-1-2 Side Panel Jacks

You can use the side panel jacks to connect an A/V component that is used only occasionally, such as a camcorder or video game.



1 AUDIO Input
Connect audio signals from a camcorder or video game.

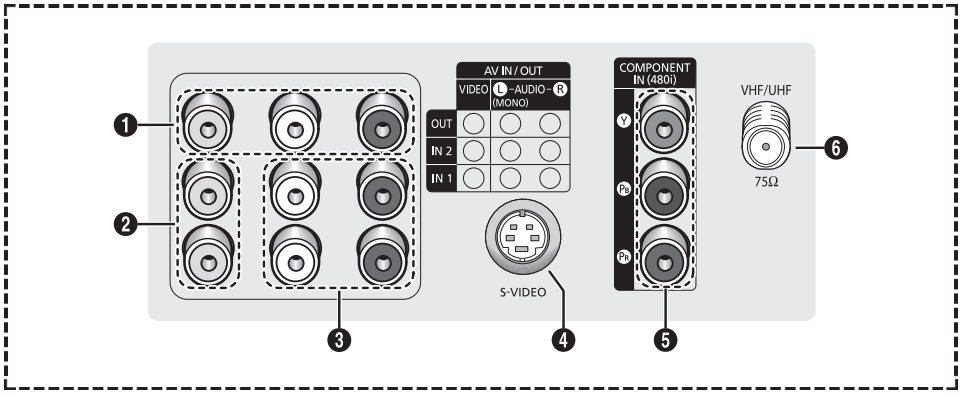
2 VIDEO Input
Connect a video signal from a camcorder or video game.

3 Headphone
Connect a set of external headphones to this jack for private listening.

- Please be sure to match the color coded input terminals and cable jacks.

11-1-3 Connection Jacks (Rear)

Use the rear panel jacks to connect an A/V component that will be connected continuously, such as a VCR or a DVD player. Because there are three sets of input jacks, you can connect three different A/V components (i.e., a VCR and a DVD, 2 VCRs, etc.)



- Please be sure to match the color coded input terminals and cable jacks.

1 Audio-Video Output jacks
Connect to the audio/video input jacks of a recording VCR.

2 Video Input jacks
Connect to the video output jacks of VCRs, DVD players and similar devices.

3 Audio Input jacks
Connect to the audio output jacks of VCRs, DVD players and similar devices.
When using the S-Video or Component Video input, connect audio jacks to “AV IN 2 (AUDIO-L/R)”.

4 S-Video Input jack
Connect to S-Video output jack of an S-VHS VCR or DVD player.

5 Component Video Input jacks (Y, Pb, Pr)
Connect to the Component audio and video outputs of DVD or DTV set-top box. 480i video signal input is available.

6 VHF/UHF
Connect to an antenna or to a cable TV system.

11-1-4 Remote Control

You can use the remote control up to about 23 feet from the TV. When using the remote, always point it directly at the TV. You can also use your remote control to operate your VCR, DVD, Cable box, and Samsung Set-top Boxes.

1 POWER
Turns the TV on and off.

2 Number buttons
Press to select channels directly on the TV.

3 +100
Press to select channels over 100. For example, to select channel 121, press "+100", then press "2" and "1".

4 MUTE
Press to temporarily cut off the sound.

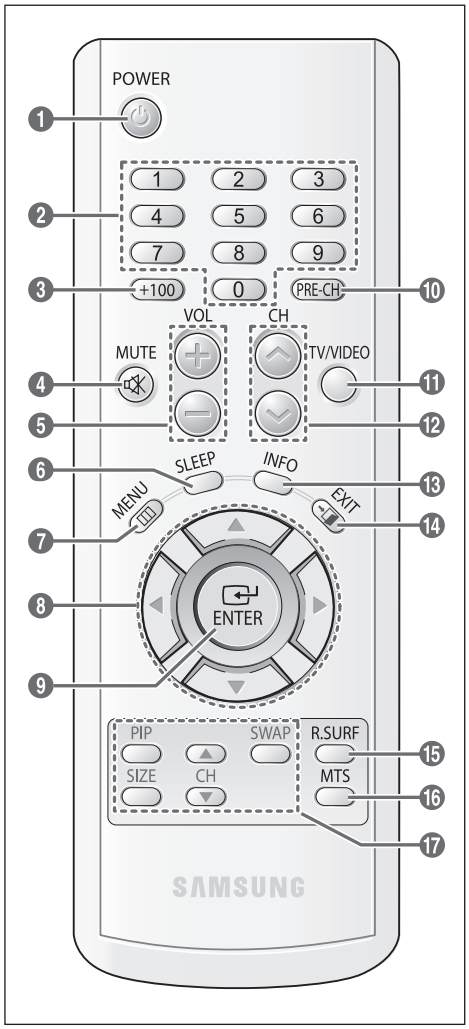
5 VOL +, VOL -
Press to increase or decrease the volume.

6 SLEEP
Press to select a preset time interval for automatic shut off.

7 MENU
Displays the main on-screen menu.

8 ▲/▼/◀/▶
Controls the cursor in the menu.

9 ENTER
While using the on-screen menus, press ENTER to activate (or change) a particular item.



10 PRE-CH
Tunes to the previous channel.

11 TV/VIDEO
Press to display all of the available video sources.

12 CH ∧, CH ∨
Press to change channels.

13 INFO
Press to display information on the TV screen.

14 EXIT
Press to exit the menu.

15 R.SURF
Press to automatically return to a preferred channel after a user-preset time delay.

16 MTS
(Multi-channel Television Sound)
Press to choose "Stereo", "Mono", or "SAP" (Secondary Audio Program).

17 PIP Controls
(depending on the model)

PIP
Press to activate or deactivate the PIP function.

SWAP
Press to interchange the main picture and sub-picture.

SIZE
Press to select a size ("Large" or "Small") of the sub-picture.

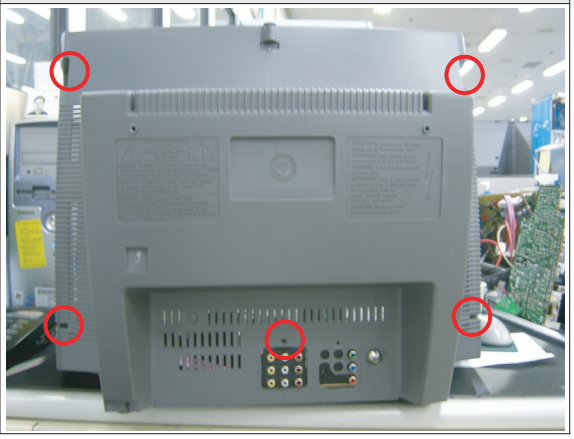
CH
Press to select a channel of the sub-picture only when the "Source" is set to "TV".

MEMO

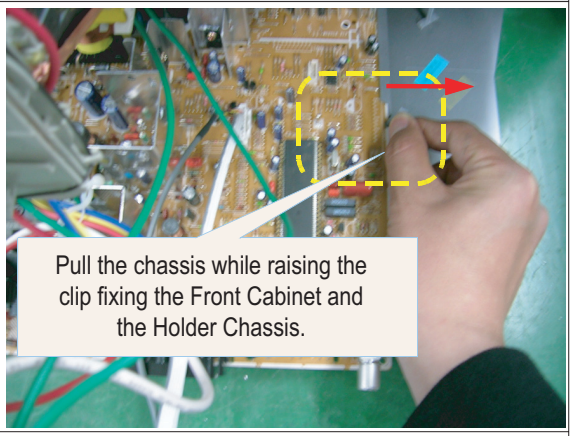
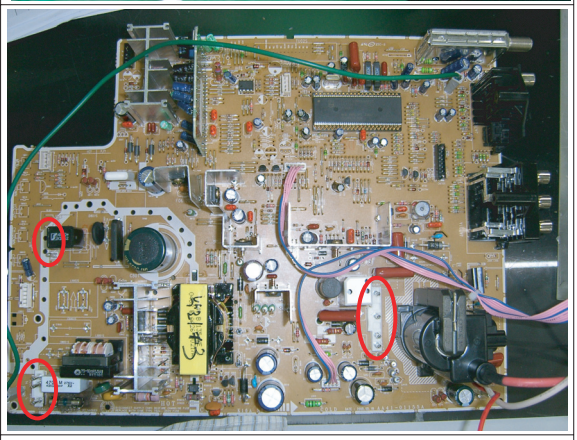
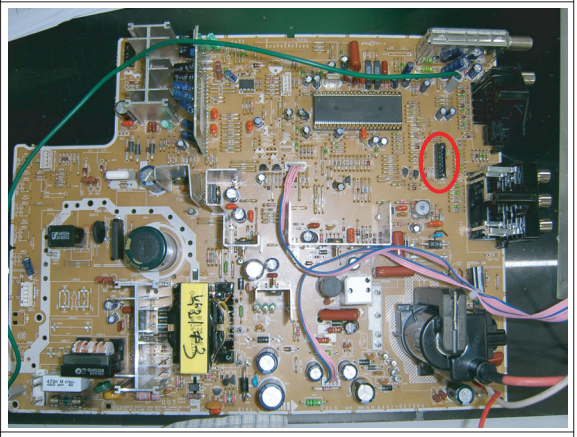
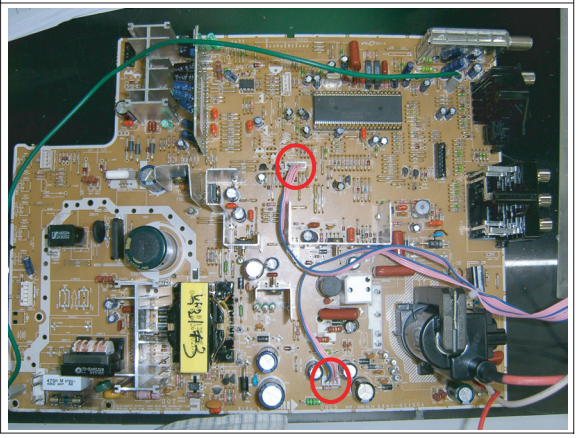
12. Disassembly & Reassembly

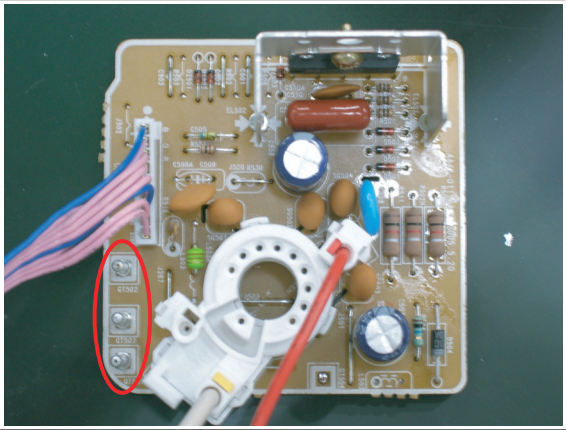
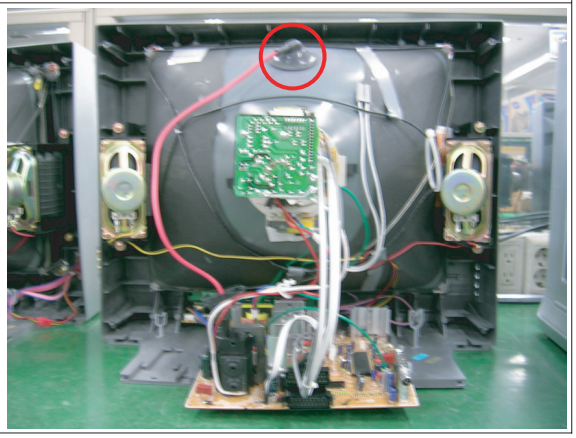
12-1 Overhaul Disassembly & Reassembly

12-1-1 Disassembling the Cabinet

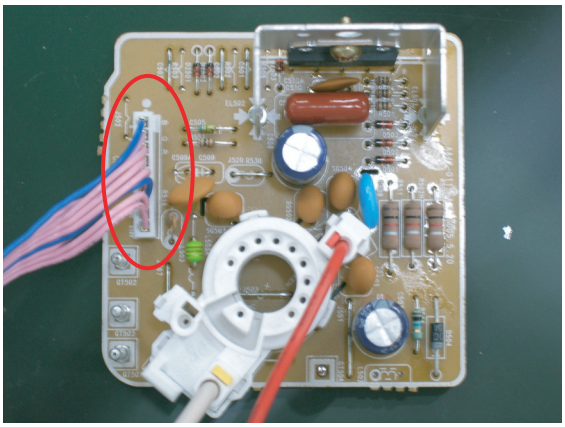
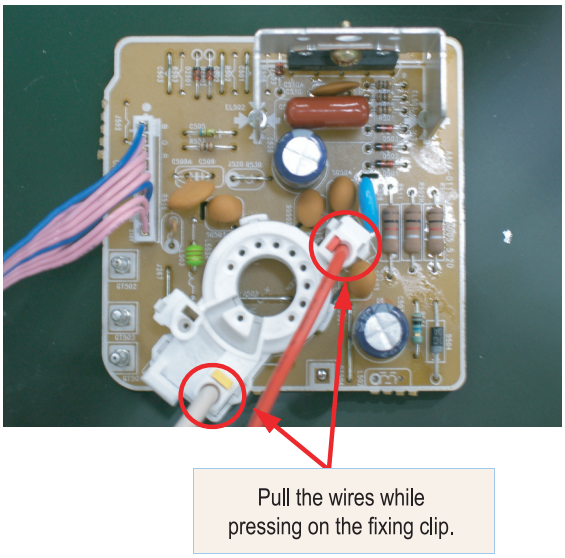
Part Name	Description	Description Photo
Back Cover	① Remove the 4 screws fixing the Back Cover. : SWRCH18A,M4,L20,RH,+,2S,-,Z ② Remove the 1 screws fixing the Main and T/Board. : RH,+,B,M4,L15,ZPC(BLK) ③ Tap the upper part of the Back Cover 2 or 3 times and pull the Back Cover to separate it from the unit. ⚠: Disassemble the product after disconnecting the power cord and discharge the unit to prevent an electric shock and damage to the product due to static electricity.	

12-1-2 Disassembling the CRT and Chassis

Part Name	Description	Description Photo
Chassis Holder	① Separate the Ass'y Holder chassis from the Front Cabinet. ② Pull the Chassis Holder lifting the fixing clip up. ⚠: Pulling the Chassis Holder by force may damage the clip or the connector. Pull the Chassis Holder just until the clip comes off the hole.	
Main Board	① Separate the Speakers, the Speaker Wire, the D-Coil Master Wire, and the Remote Control Sensor Cable from the Front Cabinet and the System Board. ② Separate the wire from the Wire pressing the at. ⚠: Since there is a clip to connect the Connector Header in the Wire Connector, pulling it by force may damage the clip or the connector. Press the clip down completely and pull the connector.	
	① Separate theAV and Main Board from the Front Cabinet and AV Wire, GT-Pin Wire. ② To separate the Wire, Fixing clip and pressing the Wire.	
	① Separate the 7P, 8P Wire connecting the DY Wire and the CRT PCB. ② To separate the Wire, Fixing clip and pressing the Wire.	

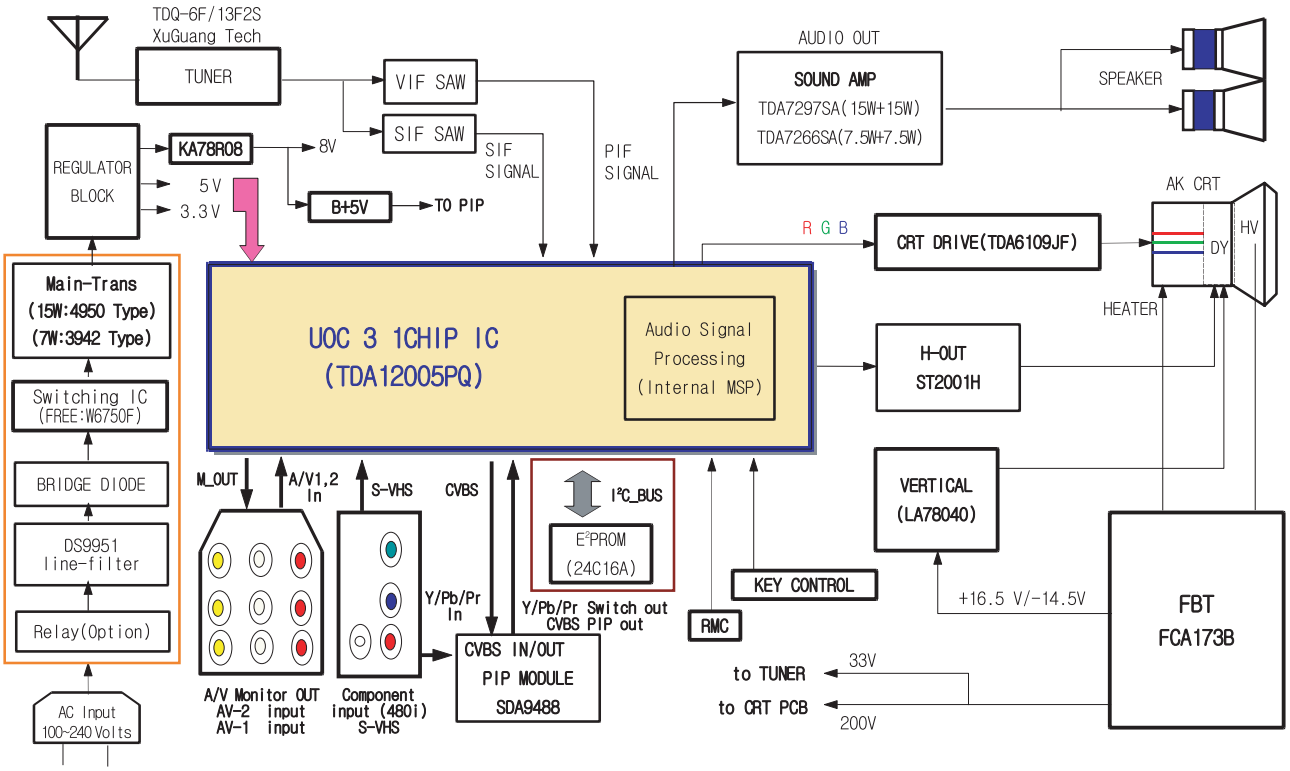
Part Name	Description	Description Photo
CRT Board	① Remove the CRT. ② Separate the TBC Wire,GND,VM cables from the CRT Ass'y. (GND, VM, Tilt Model by option) ⚠: When take off VM,Tilt cable from CRT PCB, don't touch PIN in CRT electric gun.	
FBT	① Separate the cables connecting the FBT and the CRT. ⚠: Since there may be a remaining high-voltage current within the CRT, take care not to touch the CRT hole with metal or a part of yourself when separating the cables.	

12-1-3 Disassembling the CRT Ass'y

Part Name	Description	Description Photo
CRT Ass'y	① Separate the cables from the Main Board and CRT Ass'y.	
	① Separate the wires from the FBT of the Main Board and the CRT Ass'y. ② To separate the thick white and white wires, up the yellow soket while the push-type clip at the connector. ③ To separate the thick red and red wires, up the red soket while the push-type clip at the connector. ⚠ : Take care when separating the wires because pulling the wires by force may damage the socket. In addition, separate the wires on a flat and clean surface so as to prevent scratching of the material and the PCB.	 Pull the wires while pressing on the fixing clip.

13. Circuit Description

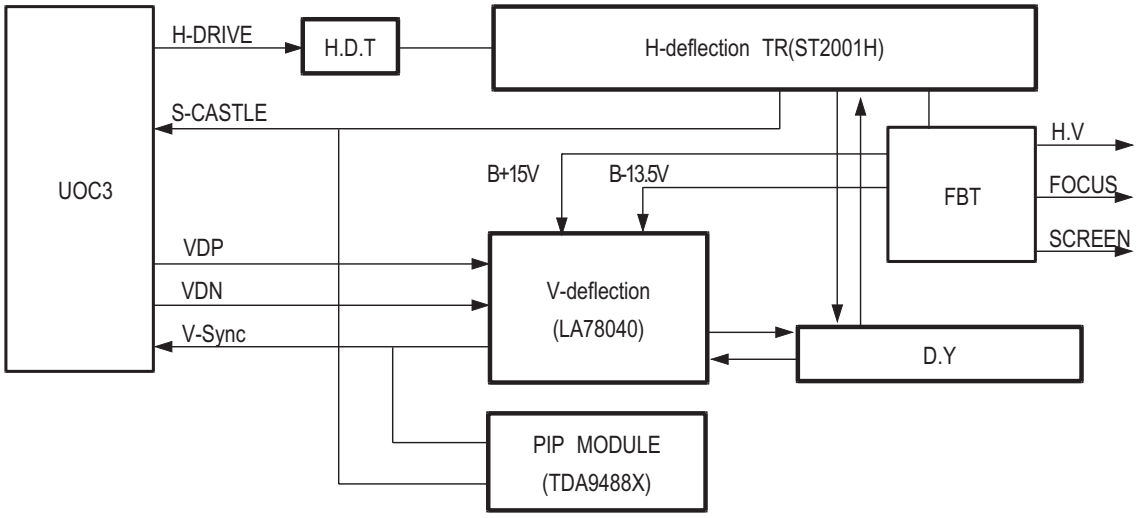
13-1 Overall Block Description



* K16A is a typical analog CRT TV set adapted to New mutiple-function IC (UOC3).
  UOC3 = UOC2 + Sound processor.
* Only IF block is out of UOC3 IC. (Split type)
* K16A have a good picture quality,called DNIe Jr. (Gamma & Dynamic skin tone)

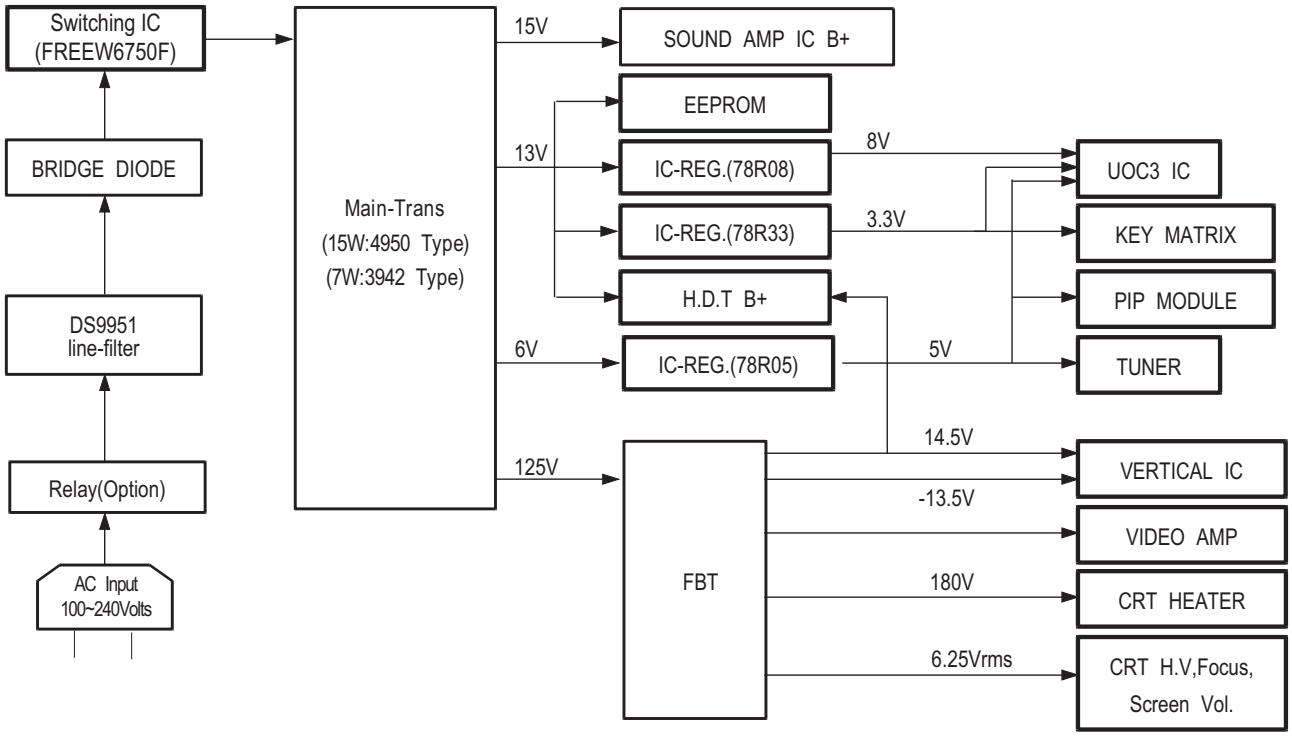
13-2 Partial Block Description

13-2-1 Deflection Block Description



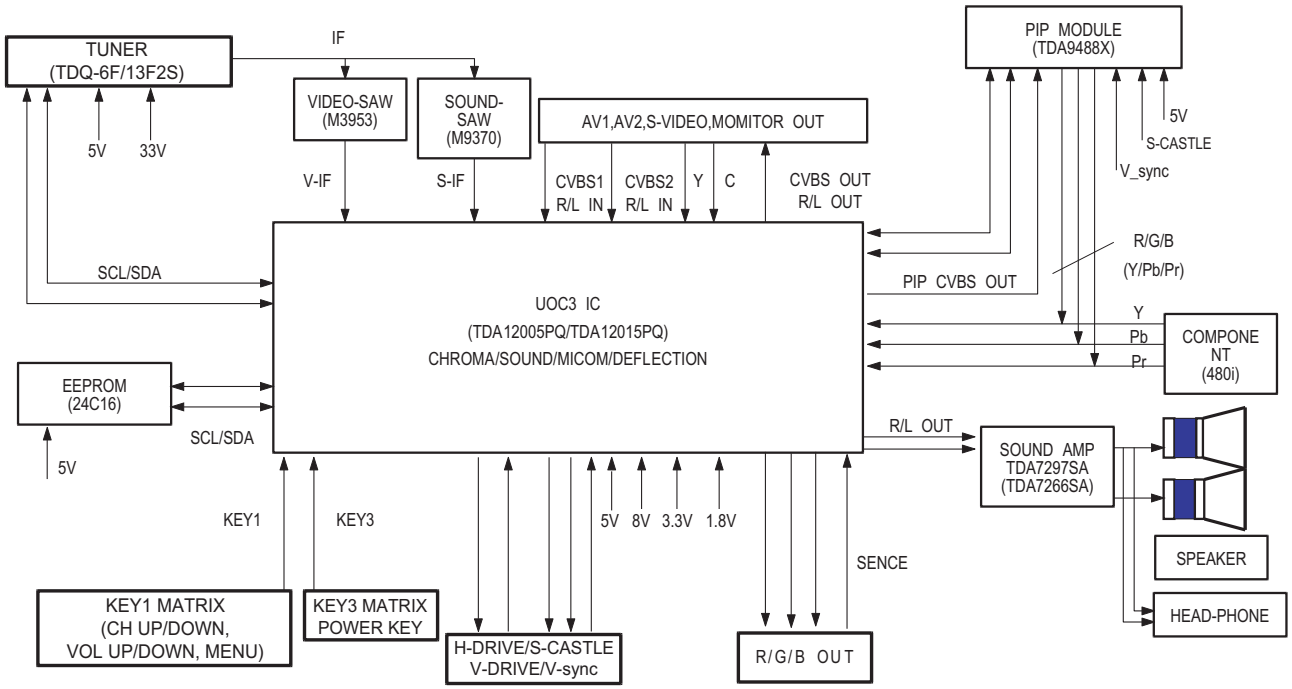
* Deflection of K16A is same to a typical analog TV set.
* K16A line-up is only 21"F model, so it have not E/W and pin-coushion circuit.

13-2-2 Power Block Description



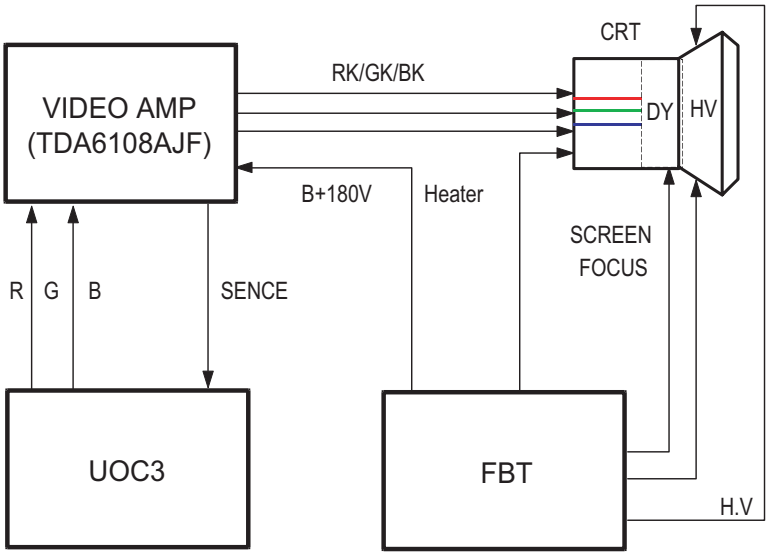
* It is the Power circuit of K16A that emphasize sound output level.(15W,10W) so, we use SANKEN Power IC(STR-6750F).
* Main trans have 2pins for sound B+option.
* We use 2types Sound Amp.
  (TDA7297SA can output over 10W+10W, TDA7266SA can output under 7W+7W)
* UOC IC need variety power supply, so we use 3type IC vol.regulator. (78R33,78R05,78R08)

13-2-3 Micom & Tuner Block Description



* TUNER is non-LNA, F/S tuner for analog NTSC CTV.
* UOC3 IC include Micom, chroma, deflection and sound processor. (with DBX fuction),so IC line-up is simple.
* PIP, Component(480i) are switched at the PIP module, so it can't display sub-picture at the Component mode.

13-2-4 CRT Block Description



* R,G,B output from UOC3 IC is small, so we need high-output video amp(TDA6108AJF).

MEMO

14. Reference Information

14-1 Other issues related to other products

Problem	Descriptions
A fixed screen can cause permanent damage to the TV Braun tube.	Braun, PDP and LCD TVs can all be damaged. When a still image is displayed in a sequence, this can leave stains or after-images due to the characteristics of the panel. However, the DLP TV has the advantage that no stains or after-images are left on the screen. The DLP TV has mirror pixels on the DMD panel that project the beam onto the screen, in which the mirror is a digital representation of 0s and 1s, leaving no trace of light. The mirror returns to a blank state so that no stains or after-images are left.

■ SD/HD broadcasts and the TV's display capability are related

1. A digital broadcast should be transmitted in wide screen (an aspect ratio of 16:9) HD. If the broadcasting station converts a conventional program created in normal screen (aspect ratio of 4:3) into a digital signal and broadcasts the signal, the left and right of the picture will not be displayed.
   This symptom also appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.
   * When watching an SD (normal) broadcast through a Digital (Wide) TV (480P normal broadcast)
   * When watching an SD (normal) broadcast through a Digital Ready (Wide) TV (Using a set-top-box)
   * When watching an analog (normal) broadcast through a wide TV
     (When watching a broadcast after changing the aspect ratio of the TV from 16:9 (wide screen) to 4:3)

2. When watching a DVD title or video tape in wide screen (21:9) through a wide (16:9) TV, watching video from a computer or game console by selecting the aspect ratio to 4:3, or watching video from a DVD, VCR, computer or game console through a wide TV by selecting the aspect ratio to normal (4:3) or wide (21:9), the left and right, or top and bottom of the picture will not be displayed.
   This symptom appears in other manufacturer's TV's. The three appliance companies are trying to resolve the problem through the Ministry of Information and Communication.

■ Changing the Order of the Picture Size for DTV 1080i/720p Sources

■ Restrictions

1. When you want to change the picture size in PIP 'ON', you must turn the PIP off before changing the size.
   However, you can change the main picture size even in PIP ON for products with no restrictions.

2. When the picture size is not Normal (4:3 for 4:3 display devices, 16:9 for 16:9 display devices) and you turn PIP on, the picture size is changed to Normal.
   However, you can turn PIP on without changing the picture size for products with no restrictions.

4. The picture size can be changed even in the blue screen.
   However, the picture size should be controlled by the product specifications if the change is impossible due to hardware restrictions.

14-2 Technical Terms

Digital Broadcast
Digital Broadcast is a television broadcasting signal digitized and transmitted according to the United States' terrestrial digital broadcast standard, or ATSC.

Mono
A type of audio interface that transmits audio signals through a single channel.
Through a mono interface, it is hard to experience stereophonic sound and sound is played only by one speaker.

Reception Sensitivity Amplification
A signal amplification technique that amplifies weak broadcasting signals by applying satellite technology to provide a better visual quality even for users in regions where only weak broadcasting signals are available.

Stereo
A type of audio interface that transmits audio signals through 2 channels.
Stereo transmits audio signals for the right and left channels so that you can experience stereophonic sound, and the sound is played with 2 speakers.

Analog Broadcast
Analog Broadcast is a television broadcasting signal transmitted according to the NTSC standard.

ANTENNA IN Port
A port to connect the TV aerial using a coaxial cable. It is generally used to watch public broadcast programs.

English Caption
A function that shows English caption or text information included in the broadcasting signal or video tape. You can use this function to study English by watching AFKN or CC marked video tapes.

Video/Audio Ports
You may experience poor visual and audio quality when watching a video tape on channel 3 or 4 through the antenna cable. You can experience better visual and audio quality connecting the TV and VCR through the Video/Audio ports. The video port is distinguished by the color yellow, and the audio ports are distinguished by the white (left) and red colors (right).

External Input
External Input is connecting video devices such as a VCR, camcorder, DTV receiver, DVD, etc. as a video source.

Satellite Broadcast
Satellite Broadcast transmits programs via satellite so that the broadcast is viable in all areas at a high visual and sound quality. It provides approximately 100 channels including public broadcast channels. To view satellite broadcast, you have to install an additional receiver.

Wired Broadcast
Satellite Broadcast refers to movie, entertainment and educational programs transmitted by the broadcasting station in a hotel or school.

Audio Multimix
Audio Multimix provides 2 languages for audio when broadcasting a foreign movie, drama, news, etc. You can select and listen to one of the supported languages or you can select and listen to both languages simultaneously.

Component Port (Green, Blue, Red)
The Component Port separately transmits the luminance signal and provides the best quality of all video connection types.

Cable Broadcast
Cable Broadcast transmits programs via cable instead of radio wave. To view a cable broadcast, you need to subscribe to your local cable broadcast service provider and install an additional receiver.

Tuner
A device that enables selecting a specific frequency for a channel on a TV or radio.

Anynet
Anynet is an AV network system that enables the easy-to-use AV interface for users by controlling connected AV devices through the Anynet menu when AV devices of Samsung Electronics are connected.

DVD (Digital Versatile Disc)
DVD is a large capacity media that can save multimedia content such as video, game, audio applications, etc. using MPEG-2 video compression technology on a CD-sized disc.

S-VIDEO IN Port
This is called super video. S-Video is a type of video signal which has the video luminance and color signals separated in order to provide a better visual quality.

VHF/UHF
VHF refers to TV channels 2 to 13, and UHF refers to TV channels 14 to 69.